

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Volume 21

NEW YORK, THURSDAY, MARCH 30, 1922

Number 13

April 1, 1922

A TEST of the "full economic strength" of the United Mine Workers will begin this week. The depths that may be plumbed before the end is reached no one now can say. Every union miner and mine laborer in both anthracite and bituminous coal fields is ordered to cease work on March 31, the non-union miners are exhorted to strike and railroad labor is expected to lend moral support and passive assistance to the cause of the striker.

The basic cause leading up to this greatest of all coal strikes in the history of the country is simple of understanding and easy to state. It is that the coal operators and the miners have not been able to agree on a scale of wages and a contract to replace that now expiring. The operators expect the miners to accept a reduction and the miners have refused; in fact in the hard-coal region they have demanded an increase of 20 per cent.

The employers of the union coal miners are not asking that their men take less wages because they are possessed of a diabolical desire to oppress the men. They are interested in having contented employees living decent American lives. But they cannot pay in wages that which they have not. The operators of the union bituminous coal mines cannot get their share of the going trade when they are obliged, because of high costs, to sell at prices well above those charged by operators of non-union mines at which costs have been reduced because of wage reductions. The coal producer likes to get a good price for his product, but when demand is limited, as in 1921, the buyer always takes the cheaper coal. In consequence, the union soft-coal fields fell upon hard times in 1921, affecting both employer and employee. The producer sold on contracts that afforded a profit, contracts made before prices took their tumble, or he sold at the market and took a loss, or he did not run his mine. If he worked his mine he paid the union scale of wages, because he was under contract so to do. But he is resolved that this year he will have a scale of wages that will enable him to produce at such a figure as will meet competition. There is no gain for either capital or labor in having the price of its product so high that it cannot be sold. That is what precipitated the present trouble in the soft-coal fields.

With respect to anthracite the situation is different, because there is no non-union competition. Here, however, the public, which has had to pay the inordinately high prices demanded by the producer to cover his cost with present high wages, has made and is making heard its protest. The pressure of public opinion for lower-priced hard coal for household use is tremendous, and it is this pressure that the operators are passing on to the miners in their wage conferences in New York at the present time.

The United Mine Workers, on the other hand, is opposed to participation in deflation. Having had for twenty-five years steady and almost continuous increases in wages—incomes culminating in post-war rates of pay far in excess of anything ever before known in the industry—it seeks to retain its advantage. No one begrudges the miner the opportunity he had and exercised of sharing in the war and post-war prosperity of the coal industry. The quarrel of the American people with the union is that it refuses to recognize that those times are over, that the miner alone cannot stay where he rode on the crest of the wave when the wave has receded.

There are, of course, other angles to the situation. A large section of the soft-coal operators are opposed to the check-off and have announced that they will not agree to the continuance of this practice in future contracts. It is through the check-off that the United Mine Workers has attained its present great strength. A practice harmless enough in the beginning in helping to build the union up to a point where it could help stabilize the soft-coal industry, the check-off has become the main support in power of a union that upsets the coal industry. The courts have declared it illegal in some of its applications.

Just why the union thinks that it can the better gain its demands by negotiating with the bituminous operators in a group instead of in small units is not clear. The officials have determinedly set their face against any meeting of the local unions with the producers and are holding out for a national conference through the Central Competitive Field.

The miners are making a strong bid for sympathy with their oft-repeated and strongly voiced denunciation of the operators who have refused to participate in a Central Competitive Field conference. They are saying that this alone is the cause of the strike. This is but camouflage. It is a legitimate thrust at a weak spot in the operators' armor. But it is not the real cause of dissension and disagreement. That is the rate of wages. What must not be lost sight of is that meeting in one group or in several, the operators demand deflation of wages. On the surface the bituminous coal strike is a controversy over procedure; in reality it goes much deeper and is concerned with the fundamental economic problem of wage readjustment.

In the anthracite region the controversy is already narrowed down to that very problem. Without hitch a conference was arranged and is in progress, but that fact has not interfered with the miners calling a strike of anthracite miners. Similarly, had the operators agreed to a Central Competitive Field Conference there would have been a strike there.

The Dark Industry

JAMES J. DAVIS, Secretary of Labor, alighted on the above strange designation of the coal industry and presented it to the ladies of the National Civic Federation as one of the first of his contributions to the present labor situation. We say "one of the first," for he is likely to be a frequent contributor in the future.

The industry is "dark," even very dark, only because the public is either uninformed or misinformed about it, for no industry other than railroading has had a brighter and more searching light thrown upon it. Coal men believe that the light has been overglaring.

The light of the inquiry on "Waste in Industry" conducted without bias by the Federated American Engineering Societies showed up the fact that other industries worked as irregularly as bituminous coal mining and that most ran less steadily than the anthracite mines. But this has been overlooked by the public. We question whether the Federated Societies really caught the significance of this discovery, even though the figures formed part of the report. It was the bituminous coal industry that was first caught sleeping in the auditorium of industry, and the word went forth that it was the only one that ever nodded.

Many are the lights which have fallen on coal mining. The Bureau of Mines let a ray shine on its accidents and its failure to extract 100 per cent of the coal. A cross gleam came from the Geological Survey, exhibiting its irregular operation and its overdevelopment. Another from the President's Bituminous Coal Commission revealed the fact that in an unusually prosperous year after a decade of penury it made almost 10 per cent of profit. The Bureau of Labor has cast a stream of light on the frequency of strikes and a somewhat garish and uncertain light on wages.

Other lights fell on it that revealed it in an almost angelic mood. The Census showed it as an industry where mortality was unbelievably low—unbelievably we say, though coal men had always known it. The Bureau of Mines showed the coal-producing industry as frugality itself when compared with the coal-consuming industries. The Geological Survey by its record of the ebb and flow in the number of operative mines showed how free the bituminous industry was from any control by the leading coal-producing corporations.

The National Coal Association and some of the local trade bureaus have used their statistical facilities to ascertain the actual wages made by the steadily working and the inefficient, revealing—is this a beauty or a blemish—that the coal-mine worker is earning more for what he does for others than he is paying for what others do for him. And now the National Industrial Conference Board is showing how large is the increase in wage compared with the advance in the cost of living in mining towns.

There were other lights like the one shed by the Geological Survey which showed nothing either harmful or beneficent in the coal industry—namely, the growth and decline of coal stocks, the weekly outputs of the districts, the loss of output due to strikes, and the difficulties resulting from the inadequacy of the railroads. Few industries indeed have such weekly records and hardly any so complete.

After all these cross lights had illumined the coal industry we thought that no one would call it "dark."

It remained for James J. Davis and William R. Ingalls to bring back to us the age-long truth that to the blind all things are dark or but faintly illuminated. The industry is indeed dark so long as the public has a blind eye. There can be no light for those whose understanding is thus obscured.

Preservatives and Mine Fires

GREAT BRITAIN'S problems in mine operation frequently shed a light on our own. The mines of that country are old, deep, warm, dry and filled with timber. The coal they contain is either peculiarly subject to spontaneous combustion or is so rendered by the crushing effect of its heavy cover. One of the predominant mining subjects for consideration in England today is mine fires.

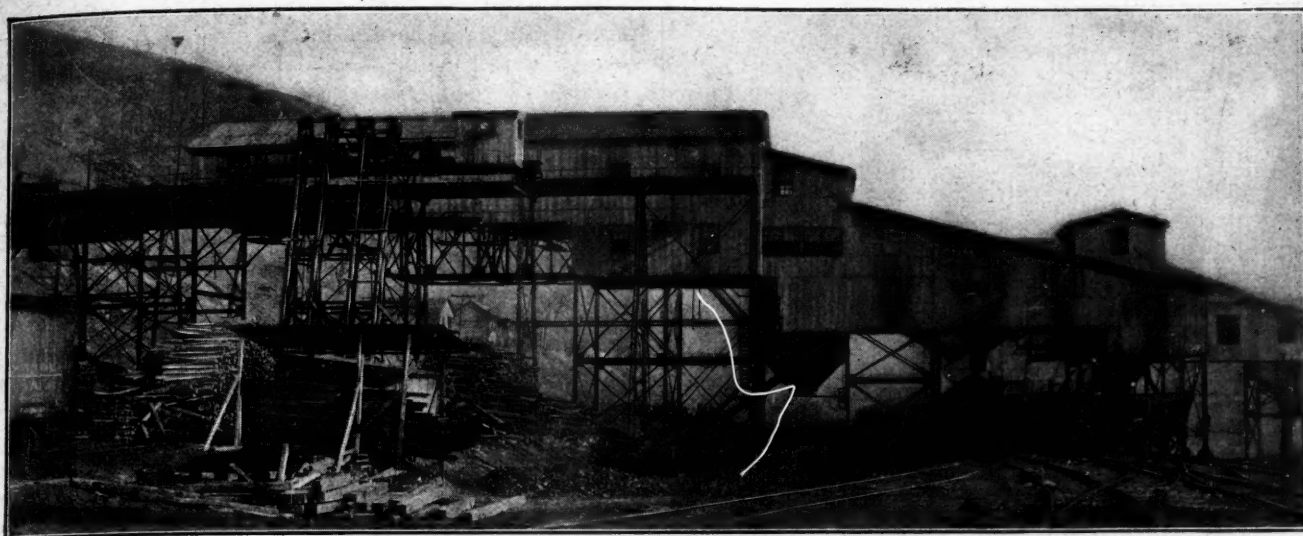
A general tendency in the same direction is noticeable in America. Our mines are mostly not as old, as deep, as warm or as dry as those in Great Britain, but conditions are gradually becoming parallel, and the literature of mine fires is increasing even here. Some of these fires, as those at Summit Hill, Carbondale and Frostburg, have been burning for years, but some are new. Not all indeed are deep. Many cannot be ascribed to depth, being surface fires, like those just named. But some seem to have clear relation to depth, especially those in metal mines.

The mine-fire hazard is becoming more menacing year by year, and with it comes the suggestion that the fire-proofing of timber may prove of great advantage. The general opinion, based on imagination rather than on experience, is that the most generally used preservative—coal-tar creosote—is likely to add to the fire hazard, yet R. R. Hornor and G. M. Hunt, who have been investigating the subject for the U. S. Bureau of Mines and the Section of Wood Preservation of the U. S. Forest Products Laboratory at Madison, Wis., are of the opinion that "there is little evidence to show that the oil adds appreciably to the hazard except, perhaps, where the wood is fresh from the treating tank."

The authors mentioned say that "it is assumed, of course, that only those timbers will be treated that are to be used in working places which are to be kept open for a sufficient length of time in excess of the natural life of the timber to justify the use of treated timber."

In the West the fire hazard has been given more thought than in the East, especially since the Delagua fire, which started from the combustion of a mine door. At least as far back as 1912 the Union Pacific Coal Co.—and perhaps other mines also—made all its brattices and overcasts of concrete, had the miners cover the mine powder boxes with sheet steel, and in many instances kept explosives in the mine in concrete boxes. The timber problem, however, is larger than can be covered in this manner. Timber must continue to be used. If it is recovered it will pay to use preservatives. If it is broken and left, it may well be worth while to have it so preserved that it will not catch fire spontaneously.

But for the present our mines are rarely deep and the need of preserving timber for permanent roadways, especially return airways, is imperative, so that it is hardly likely at present that much consideration will be given to the preservation of any wood except that which is likely to be retained in service for at least a few years.



TIPPLE AT PARKERS RUN MINE; ELEVATORS ON SIDE USED FOR RAISING PIT PROPS TO TIPPLE HEIGHT

Parkers Run Tipple Has Two-Speed Picking Table, Prop Hoist and Boom to Feed Cars or Domestic-Coal Bin

Tipple Built to Run Either 200 or 400 Tons Per Hour—By Elevating Loading Boom Lump Coal May Be Delivered to Domestic-Coal Bin—Chain Lifts Raise Timbers and Rails from Supply Yard to Mine-Track Level

BY ALPHONSE F. BROSKY
Pittsburgh, Pa.

THE tipple of the Parkers Run mine, belonging to the Fairmont & Cleveland Coal Co., is one of the best in the Fairmont region, and several unusual details are embodied in its construction. The framework is composed of structural-steel shapes supported on H-columns. The stairways are built of channel stringers provided with angle-iron clips, upon which rest inverted channels filled with concrete. Corrugated iron siding and roofing, with ample window lighting, provide a covering for the top and sides of the frame.

The equipment installed within the building is capable of handling 400 tons of coal per hour. Loaded trips are delivered on a level track to a chain trip feeder of 80-car capacity. This is driven by a 15-hp. slip-ring motor through a rubber belt and an adequate spur-gear reduction. As is customary, this machine is controlled from the dumping point through a friction clutch. The cars are fed one at a time over a track scale, passing thence to a Phillips crossover dump, where the coal is discharged to a receiving hopper. The empty cars pass from the dump to a kickback and thence gravitate to the empty track.

From that point a trip-maker elevates the empties individually over a slight grade to the level track, where the empty trip is made up for its return to the mine. The trip-maker is a duplicate of the trip-feeder, and one motor is utilized to actuate both machines. The trip-maker is driven from a countershaft of the trip-feeder through a steel thimble roller chain and spur gears.

From the receiving hopper the coal is fed to a picking table by an apron feeder driven from the table tailshaft. The feeder may be run to pass either 200 or 400 tons per hour. This arrangement is seldom made in tipples of this type. It possesses the advantage of maintaining a

uniform flow of coal through the preparator whether the day's output be 3,000 or only 1,500 tons.

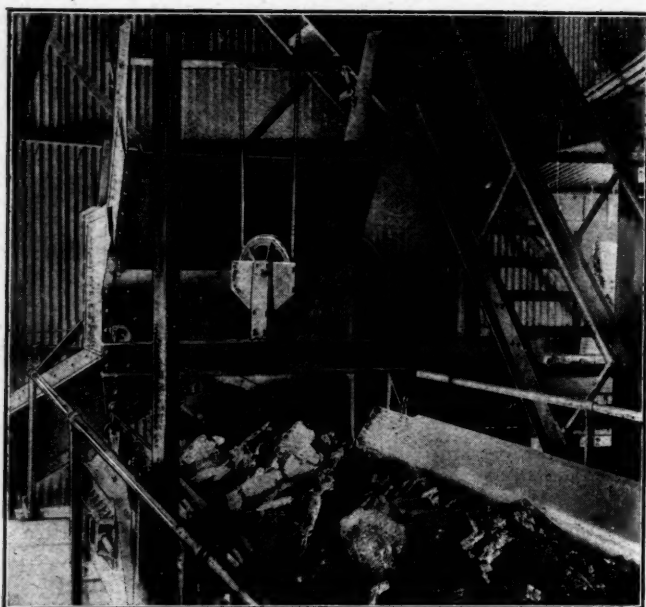
As the coal leaves the feeder it passes over a screen that delivers it to the picking table with the fine coal on the bottom and the lumps on the top. This separation facilitates picking. The table is driven at the rate of 60 ft. per minute by means of a 15-hp. slip-ring motor controlled automatically through push buttons.

No peculiar features are embodied in the screens proper. Arrangements are made so that sized coal may be loaded in cars of different depths of bed with a minimum of degradation. An emergency run-of-mine chute permits unsized coal to be loaded on the slack track without operating the shakers. By raising the loading boom to a feed chute, lump coal may be discharged onto an apron conveyor which carries it to a small storage hopper, which furnishes a supply of coal for domestic use. The arrangement is shown in Fig. 1.

PROPS RAISED TO TIPPLE TRACKS BY CHAIN LIFT

The coal bed lies at tipple height and is thus above the elevation of the supply yard. An unusual means of raising the more generally used materials, such as steel rails, ties and mine props, to mine-track elevation has been adopted. This arrangement, as shown in the frontispiece, takes the form of a trestle built beside and on a level with the tipple approach. The trestle is of composite construction and was erected after the completion of the tipple proper. It is therefore independent of the preparatory structure. It carries a single track for supply cars.

Timbers and rails are elevated from the ground level by means of two supply elevators placed side by side. These consist of special steel chains provided with suit-



LOADING BOOM FEEDING DOMESTIC-COAL BIN

The loading boom is raised to the mouth of the chute shown in the center background, which discharges onto the apron conveyor extending to the right-hand corner.

able dogs for receiving the material. They are driven by a 20-hp. motor. The material is placed on the dogs at the bottom, and on reaching the top is discharged onto a curved skidway upon which it rolls or slides into suitably placed mine cars.

This tipple together with the supply elevators and receiving trestle was designed, fabricated and erected by the Pittsburgh Coal Washer Co., of Pittsburgh, Pa. The Sewickley bed, which runs 72 in. thick at this point, is worked at this plant, no great difficulties being encountered in its operation. The cost of mining consequently is low. Ordinary methods of mining or those adapted to normal conditions are followed, so that little can be said of the underground development. This mine is situated at Parkers Run, W. Va., a few miles east of Fairmont, and is connected with both the Baltimore & Ohio and the Monongahela railroads.

Lowering Cost of Room-Neck Switches

BY RALPH W. MAYER
California, Pa.

IN THIS day of standardization and quantity production it is interesting to learn that some mines have adopted a well-planned system of tracklaying that saves rail cutting, hunting for material, measuring of parts, waste and delay in the work and interference with the operation of the entry in which the room switches are to be laid. The rooms are turned on 36- and 72-ft. centers. Of course, other distances could be used with equal facility so far as the switch system is concerned, but these lengths meet the mining conditions. The rails as purchased are 30 ft. long. One or more of these is cut into 6-ft. lengths, the pieces being drilled at both ends for fish plates the same as are the regular track rails. A 30-ft. plus a 6-ft. length of rail then corresponds exactly with the distance center to center of rooms.

The exact location of the first room neck is carefully marked or given the trackmen before a single rail is laid in the entry. A 6-ft. length of rail is then placed on the

room side of the track with its outby end in the exact location to be occupied by the room frog. A 30-ft. length of rail is then placed inby with its end butting against the end of the 6-ft. section already in place. On the outby end of the 6-ft. length it may be necessary in this instance to cut a rail to fit. By this means when the 6-ft. length of rail is removed a frog and a rail of the same aggregate length may be substituted, fitting the place exactly and being in proper position for the room track.

The track rail on the room side of the entry is then laid of 6- and 30-ft. lengths of rail alternating throughout its entire length. The 6-ft. sections thus come automatically opposite room necks and occupy the exact position which will be taken by the room frogs and short rails when the rooms are turned.

When the tracklayer is ready to lay a room switch, the proper 6-ft. length of rail is taken up and a frog and shorter rail slipped into its place. The end of the adjoining 30-ft. length is then bent inward to form the follower rail; the switch points and other parts are added and the job is complete. No rails need be cut when laying any of the switches on the entry.

Plate or built-up frogs are used. When a room has been worked out and the switch is to be removed, the frog and other switch parts are taken up, and a 6-ft. length of rail put in place. The 30-ft. rail which has been used as a follower is bent back in line with the entry rail and bolted and spiked into place. This leaves the track in exactly the condition in which it was before the room switch was laid.

When five adjoining rooms have been worked out, the 6-ft. lengths of rail may be reclaimed. After they are removed, the spikes holding the 30-ft. lengths are loosened and two of these lengths shoved endwise outby and the other two moved endwise inby until they butt against each other and the adjoining rails. This leaves a 30-ft. interval into which a corresponding length of rail may be fitted. All these lengths are then bolted together and spiked solidly in place.

By this means no time is lost either in laying or taking up a switch or in looking for, or cutting, rails to fit. Whole switches may be moved bodily from room to room and put immediately into place. As everything is made to standard it takes no longer to lay one switch than another. This saves both time and labor, the consumption of which in cutting rails to fit and bending them into place when following ordinary practice is almost unbelievable to one who has never attempted to do this kind of work.

THERE ARE FROM 25 to 30 miles of track in the average Illinois shipping mine, over which is operated the haulage system necessary to move coal, in so-called pit or mine cars, from the various rooms and entries, where it is mined, to the shaft where it is hoisted to the surface. For the lighting of these underground passages there is operated at each of these mines an electric plant of a capacity in excess of that required for lighting an ordinary town of 5,000 inhabitants. Such lighting plant is operated approximately throughout the entire twenty-four hours, being required during the working period for lighting the underground works and at night for lighting a large portion of the underground as well as the top works.

A LARGE MODERN coal mine is in reality an underground city with a population, during working hours, of 500 to 1,000 men. Forty-five Illinois coal mines in the last year had an average of 631 employees.

Varying Track Gage and Bearings Would Not Prevent Standardizing the Mine-Car Running Gear

Cut the Axle in Two—Mount the Parts in Standard Bearings Bolted to a Standard Steel Channel—Use a Standard Steel Plate Riveted to the Channels to Keep the Four Wheels in Alignment

BY F. H. CADMUS*
Detroit, Mich.

IN THEIR efforts to design and develop one new feature after another pertaining to the method of lubrication and to the means for the retaining of the lubricant after it has been applied manufacturers seem to have lost sight of the importance of the standardization of mine-car running gear. So today, speaking both of plain and roller-bearing wheels, there are many wheel constructions, with different methods of retaining the grease, etc. Both kinds of wheels seem to have their particular advantages and engineers favor one or the other according to the satisfactory results each one has had in the past with his respective kind of wheel. It now seems that mine-car running gear has advanced as far as it will for some time to come, in all features except standardization.

So many good constructions are to be had that the mine owner is at times influenced somewhat by price, and as a result of this condition has been led farther and farther away from the very point he must strive for in the future, namely, the standardization of his equipment.

NON-STANDARD PARTS COSTLY AND CAUSE DELAY

In some cases the operators have different track gages in their different mines, due both to necessity and to the taking over, through consolidations and other financial transactions, of mines opened by others, so in addition to different types of cars there are sometimes different track gages and different models of the same type of car in the mines of a single company. From this, one can readily see where the mine operator is today as far as standardization is concerned.

Many operators in ordering repair parts for their cars must accompany their order by sketches showing the dimensions of the parts required. These parts, which should be made in quantity production, become special parts and must be sent through the shop as a special order. They not only cost much more than would standard parts but they take longer to make, for the shop must find an opening in its schedule, which in most cases is not within the week and sometimes not within the month. At any rate the parts are seldom received by the operator when he expects them and never when he wants them.

The above conditions force the operator to carry more parts in stock than if he had standard equipment, and these parts must in most cases be carried at the individual mine, as they are of use to that mine only. Operators probably could add much to what has been said already, for I speak only from observations I made while installing my production control system in a large plant, one of the products of which was mine cars.

It is a fact that the axle, which must be changed in

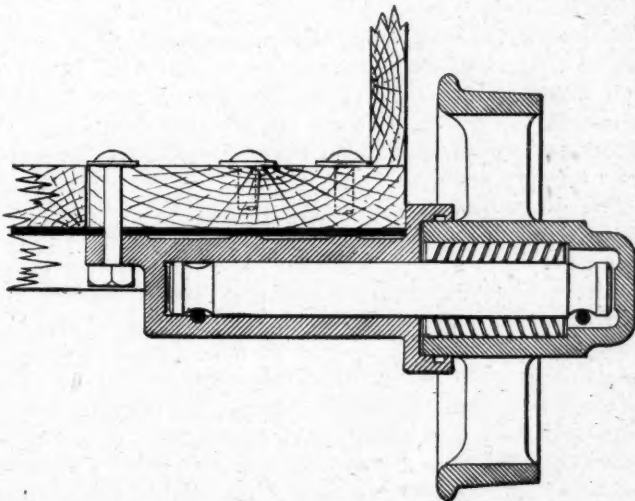
length for each track gage, is the most prominent obstacle to standardization. This drawback can be overcome by cutting the axle into two parts, lengthening the box and closing up the inner end. It is then necessary to make a bearing inside this box to take the thrust, which in the case of the full-length axle is taken care of at the opposite side of the car.

There are now four units to a truck instead of two, as in the case of full-length axles. By attaching two of these separate units to a steel channel and beveling these to fit its fillet, a single unit is made, equal in strength to any full-length axle. Any engineer can check the accuracy of this statement by applying the simple rules of "flexure in beams" to the axles under the two styles of loading.

This construction makes it possible to use the same units for any track gage, the difference being made up in the length of the channel, but with this exception all parts are interchangeable.

It seems that it would be desirable to go a step further and connect the two channels by a $\frac{1}{4}$ -in. plate, bent at the ends or connected to the channels with angles and bearings to be changed at will and still always retain a fixed alignment of the four wheels. It will also permit the changing of these parts without disturbing the body of the car, as the truck can be bolted solidly to the bottom of the car.

Inasmuch as the bearing has an inclosed chamber, a type of wheel should be used that has an inclosed outer hub and also a bearing on the inside of this outer hub to do away with the wearing washers between the inner wheel hub and the box. The method of standardization



BY CUTTING AXLE IN TWO PARTS RUNNING GEAR CAN BE MADE TO SUIT ANY TRACK GAGE

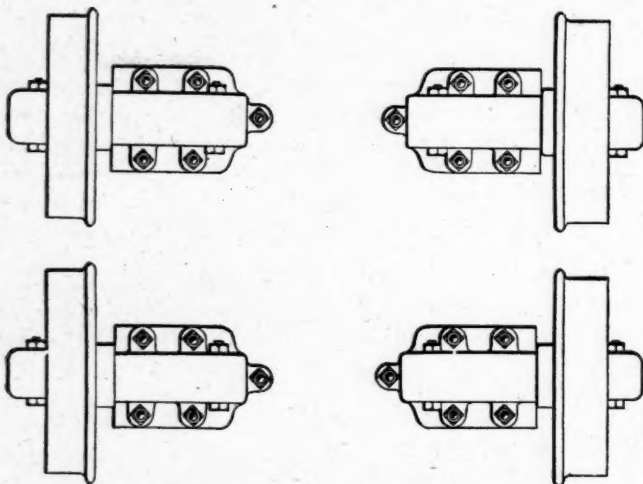
A bearing is made inside the box to take the thrust which, where the axle crosses the car, is opposed by the wheel on the opposite side.

*Industrial engineer, Lewis-Hall Iron Works.

having been dealt with in general terms, it now seems appropriate to go into the details of construction.

The axle having been cut into two parts, some provision must be made to take up the thrust caused by irregularities and curves in the track. This can be done by providing a thrust bearing at each end of the axle, at the same time using a method of confining the wheel to the axle and the axle to the box which will permit a certain amount of end play. The inner end of the wheel hub also must be prevented from rubbing against the end of the box. Thus all the thrust is taken by the axle alone instead of a part being taken by the hub, and as the axle must necessarily be of less diameter than the hub the friction due to thrust is confined to a radius not greater than that of the axle, and its leverage is thereby reduced not less than 50 per cent.

As the axle is inclosed in a chamber composed of the box and the wheel hub, good workmanship assisted by



EACH WHEEL BOX CAN BE SEPARATELY REPLACED

With such equipment it is not necessary to keep a separate stock for every track gage which the mines may have.

the simple application of a felt washer will confine the lubricant to this chamber and eliminate the leakage, which is expensive, wasteful and dangerous.

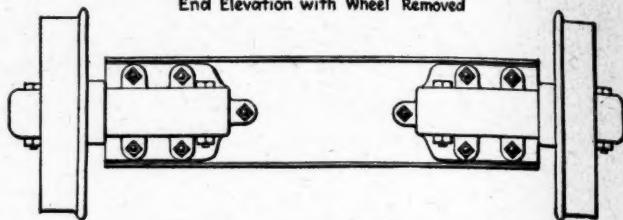
It also seems to be a good time to propose a better method of applying lubricant to the wheels and axles. Many operators will admit that they use a cheap grade of black oil—not because it is the ideal lubricant but because they know a large percentage is going to drip out on the tracks and running gear, and to cover this loss, first cost of oil must be kept down. Why would it not be a greater economy to use the best, pay a higher price perhaps, and then put it where it is needed, keep it there, and make it work.

The old-fashioned pipe plug must go. It is continually getting lost or dropped into the dirt and then put back into place by a careless oiler, and the accumulation of dirt invited to enter the bearing and do its worst. Here is a good place to introduce another stage of standardization and one of several good systems of high-pressure lubrication, using a good grade of grease, presents itself as a desirable remedy for many difficulties which have been encountered in the past.

Some operators prefer a roller-bearing wheel though others are satisfied with a plain "steel-on-iron" bearing. In order that all may be satisfied the wheel hub may be so made that to accommodate either style of bearing will necessitate only a slight change in the design of the hub, and the box can be kept the same for both styles



End Elevation with Wheel Removed



WHEEL BOXES ARE BOLTED TO STANDARD STEEL CHANNEL

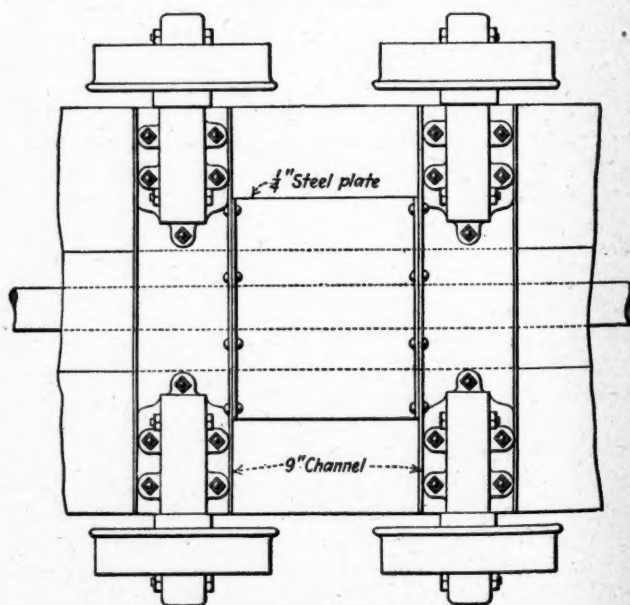
The length of this channel and its drilling is, of course, not standard, varying with every track gage.

of bearing, as the bearing surface proper is the inside surface of the wheel hub, the wheel turning on the axles.

Thus the bearing and the axle are interchangeable between the two entirely different styles of bearing—roller and plain—the lubricating system is the same for both and the one difference is in the hub of the wheel. What would this not mean to the stock of spare parts for mine-car running gears?

Now, in case a break occurs in wheel, axle or box, one-quarter of the car is out of commission and only one-quarter of the car needs to be torn down. A new unit is quickly installed and here again the value of the single unit is seen. With a full-length axle carrying two wheels and two bearings, a broken axle or a broken bearing requires a complete tearing down of one-half the running gear of the car, with the possible scrapping of this whole unit, whereas with the standardized single unit not more than one box, one wheel or one axle requires to be replaced. Here again is a great saving of time, labor and material, and the sum of these three items equals cost of repairs.

These points in favor of a standardized mine-car equipment may be briefly summed up under the follow-



STEEL CHANNELS UNITED BY WIDE CHANNEL

This channel may be made standard so long as the wheelbase is fixed. However, it is generally understood that the wheelbase should be one-third the car length. That length, however, is less variable than the capacity and can be standardized, for cars which violate this standard do not have to be thrown out.

ing list of features and advantages: (1) A running gear which is standard with all parts interchangeable regardless of track gage. (2) One that is adaptable to either plain or roller-bearing wheels. (3) One that will obtain the highest degree of efficiency and economy in operation. The side thrust incidental to travel around curves and track irregularities, which has heretofore been so destructive and troublesome, is entirely overcome by this construction. (4) Perfect and permanent alignment of the axles is obtained by attaching the four boxes to the rigidly built-up steel truck with bolts and lugs. (5) The side thrust is taken at the ends of the axle, inside the wheel and box, and for this reason there is no friction between the wheel hub and the box. (6) The wheel and box when assembled form a chamber within which the axle is wholly contained and inclosed, and further constitute a containing chamber for lubricant, so that the surfaces between which there is turning motion are always kept well lubricated. (7) The containing chamber is sealed; water, dirt and grit cannot get in nor can the lubricant get out. (8) The simplicity with which broken wheels, axles and bearings may be replaced will reduce running-gear repair costs to a minimum. (9) A modern system of applying lubricant will result in greater efficiency, greater economy and therefore better results.

In Regrouting Cylinder Foundation, Use Of Sulphur Was Narrowly Averted

BY F. C. SINBACK
Oak Grove, Ala.

SOME time ago, while the master mechanic for a large coal-mining company, it became necessary for me to provide for the regrouting of the main generator engine—a 30 x 42-in. corliss. This machine was so constructed that the cylinder rested directly on the concrete foundation, a heavy flange being cast on the bottom edge, with holes cored through it to receive the anchor bolts. When the engine was erected the foundation was thoroughly grouted with cement, but at the time of which I speak, about two years later, the engine required releveing, and for this reason the foundation had to be regROUTED.

As this occurred at a time when coal was in great demand and as our output would be cut about in half by shutting down this engine, much thought was expended on this problem, and a method sought for doing this work that would cause no delay in the operation of the mines.

The superintendent at this plant, himself an engineer, had decided on using sulphur for the grouting. This had the advantage over concrete in that it would solidify almost as soon as it was poured, whereas cement would require several days to harden. It was decided also to do the work on Sunday, so that no time would be lost in the operation of the mines.

I was afraid, however, that the heat from the cylinder would melt the sulphur, although I could not remember offhand the melting point of this material, nor did I know exactly how hot the bottom of the cylinder became. Something told me, however, that sulphur would not answer as grouting under that cylinder for the above reason.

I spoke to the superintendent about this matter, but he asserted that there was no danger. As I was unusually busy attending to other matters and as he had

taken it on himself to handle this matter, I said no more at the time. The sulphur was purchased and all preparations made to do the work the following Sunday.

On the morning of that day I started raising the engine. All anchor bolts were loosened and the machine wedged up. I found that the cylinder had gone down about $\frac{1}{2}$ in. into the grouting, but that the crank end of the girder frame remained practically in its original position. This is accounted for by the fact that the frame as designed was rather light, with the result that it was not stiff enough to prevent it from springing. This allowed the cylinder to work on the foundation to a greater extent than the rest of the machine. After wedging up and removing all the loose grout from under the cylinder a space of more than an inch in most places was left to be filled with the new grouting, and under the girder frame this opening gradually diminished until it became nothing at the extreme front end.

MELTED SULPHUR READILY ON EXHAUST BONNET

The superintendent had been on hand for some time before I had completed wedging up and was looking after the melting of the sulphur. Having completed the preparation of the engine and everything being ready for grouting, I walked out to the point where the sulphur was being melted in a large iron pot and watched the proceedings for a few minutes. I was still not satisfied about the melting point of the new material as compared with the heat of the cylinder under which it was to be placed. Accordingly, saying nothing, I picked up a small lump of the sulphur, carried it into the power house and placed it on the exhaust bonnet of one of the other engines in operation at the time. It promptly melted. I at once realized that it would never do to use sulphur under the cylinder. I therefore returned and told the superintendent as much. To convince him, I picked up another lump of sulphur and asked him to come into the power house, where I demonstrated how it melted down on the exhaust bonnet of the running engine. After seeing this he became much agitated and asked me what we were to do. I told him to go ahead and pour the sulphur under the girder frame, while I gathered together enough lead and babbitt to grout the cylinder in place.

LEAD, BABBITT AND ZINC USED TO LEVEL UP

I collected about 1,200 lb. of lead, babbitt, zinc and all the other soft metal that was available. This we melted in the pot to which I have referred and poured it under the cylinder, using a large babbitt ladle for dipping it out. It took practically all the metal to fill the space, and we had several narrow escapes from being burned by flying metal, as this material blew readily when it came in contact with the damp concrete foundation. However, we operated the engine on Monday, and it has been running on this grouting ever since.

Had sulphur been used it would have melted out promptly on starting up, leaving the cylinder swinging on the girder frame. This no doubt would have broken, wrecking the engine and possibly causing loss of life. I have since looked up the melting point of sulphur and found it to be from between 239 and 248 deg. F. I have also found that the bottom part of the cylinder attained a temperature of about 266 deg. F. These temperatures tell their own story and show what might have happened if the foundation under the cylinder of this engine had been grouted with sulphur.

Make Wage Scales So Flexible That They Will Run for Years Without Injustice

BY F. L. BAIRD*

Renton, Pa.

BUSINESS travels in cycles, with three major movements in each cycle. We have (1) the period of accumulation of capital with its easy money conditions, its gradually rising prices for capital and labor, its expanding credit and its general optimism; (2) the period of distribution with its overextension of credit and its overexpansion of business when prices of both commodities and labor reach their peak, when credit becomes strained and money scarce and high; (3) the period of depression when the public is pessimistic, industries shut down and labor is out of employment and when the public retrenches and stops buying.

In this last period frozen and overextended credits are gradually liquidated. Money becomes easy and cheap and seeks employment, and we drag along in this condition until the public comes slowly to believe that prices have reached their lowest point and begins to buy again. The length of the period of depression always depends on the speed at which commodities and labor are brought down to a normal level.

We then follow the cycle, beginning, as before, with the period of accumulation. This better economic condition starts in the section of the country that is first to adjust itself to the lower price basis. This has been the history of business conditions in the United States from the beginning and it is the natural outcome of the laws which govern the human mind.

Capital generally is in control of intelligent people, for if they were not intelligent they would not retain control of it long. During periods of depression capital is wise enough to renounce any attempt to continue making the big profits of the periods of great prosperity just past. Thus it is that capital always makes the sacrifices in profits before labor is ready to grant any concessions as to its rate of pay. In the language of the counting house, capital liquidates before labor.

Capital and labor must work hand in hand, for one is absolutely necessary to the other and on the success

or failure of one depends the success or failure of the other. We cannot have prosperity of capital without prosperity of labor, and labor cannot be prosperous unless capital also prospers, for the producer is the ultimate consumer.

It is right and necessary that labor should have its organization to promote its welfare and have a hand in deciding its working conditions and remuneration. But the present system of inelastic wage rates covering a period of years that blindly overlooks the ever-changing economic situation due to the business cycle is wrong and fair neither to capital nor labor. So is a system that is set for each district without any regard to local conditions at the mines or without consideration of the restriction of the product to certain definite coal markets which the quality of the coal or the railroad connections and competition of other fields imposes.

I have said it is not fair to capital or to labor, and it is clear that it is harmful to the latter because during the periods of accumulation and distribution labor does not get its fair share of the profits that capital and labor working together create and therefore should enjoy in common and because during the third period, that of depression, organized labor resists wage reductions, so that, despite the willingness of capital to meet price reductions in non-union fields, it cannot do so, and the mine worker consequently gets little work, though at high wages, and there is a deadlock with the buying public, which retards the return of the accumulation period—a direct loss to labor as well as to capital. Furthermore, friction is inevitable in making a new scale, for what will not mend must end.

The unchanging wage scale is not fair to capital because during the period of depression the operator is forced to close his mines or run them at a loss.

The appended table will give an idea of a scale such as I have suggested. The selling price which is assumed to be normal for the 1918 wage scale is \$2.40. All increases or decreases in price are taken as referring to this sales price. The wage concession is taken as 60 per cent of the price increase and the wage deduction 60 per cent of the price decrease. Thus the pick work price, which is 76c. with the price at \$2.40, will be \$1.063 when the price rises to \$4, and 58.9c. if the price falls to \$1.50.

*Chief engineer, Union Collieries Co.

PROPOSED SLIDING SCALE FOR COAL-MINE WORKERS

Average Selling Price, Run-of-Mine Coal, Per Ton	Mining, per Ton		Machine Mining Rates				Inside Day Wage				Outside Day Wage				
	Percentage Relation of Sales to Basis Price	Percentage Relation of Wages to Basis Rate (60% Sales Percentage)	Pickwork	Machine	Cutters Wide and Narrow Work	Cutters Entry Per Yd.	Loaders, Wide and Narrow Work	Loaders, Single-Shift Entry Work, Per Yd.	Loaders Double-Shift Entry Work, Per Yd.	Shot Firers	Pumpers	Brattice Men	Common Labor	Tipple Hands	Common Labor
*\$1.50	-37.5	-22.5	\$0.589	\$0.535	\$0.0800	\$0.1515	\$0.4007	\$0.3655	\$0.4724	\$3.88	\$3.72	\$3.88	\$3.72	\$3.44	\$3.20
1.60	-33.3	-20.0	.608	.552	.0826	.1564	.4136	.3773	.4876	4.00	3.84	4.00	3.84	3.55	3.30
1.70	-29.2	-17.5	.627	.569	.0851	.1613	.4265	.3890	.5028	4.13	3.96	4.13	3.96	3.66	3.40
1.80	-25.0	-15.0	.646	.582	.0877	.1662	.4394	.4008	.5181	4.25	4.08	4.25	4.08	3.77	3.50
1.90	-20.8	-12.5	.665	.604	.0903	.1711	.4523	.4126	.5334	4.38	4.20	4.38	4.20	3.88	3.60
2.00	-16.7	-10.0	.684	.621	.0929	.1760	.4652	.4244	.5486	4.50	4.32	4.50	4.32	3.99	3.70
2.10	-12.5	-7.5	.703	.638	.0955	.1809	.4781	.4362	.5639	4.63	4.44	4.63	4.44	4.10	3.80
2.20	-8.3	-5.0	.722	.655	.0980	.1857	.4910	.4480	.5791	4.75	4.56	4.75	4.56	4.21	3.90
2.30	-4.2	-2.5	.741	.672	.1006	.1906	.5039	.4598	.5943	4.88	4.68	4.88	4.68	4.32	4.00
†2.40	Basis	0	.760	.690	.1032	.1955	.5168	.4715	.6095	5.00	4.80	5.00	4.80	4.42	4.11
2.50	+4.2	+2.5	.779	.707	.1058	.2004	.5297	.4833	.6248	5.13	4.92	5.13	4.92	4.53	4.21
2.60	+8.3	+5.0	.798	.724	.1084	.2053	.5426	.4951	.6400	5.25	5.04	5.25	5.04	4.64	4.31
2.70	+12.5	+7.5	.817	.741	.1109	.2102	.5555	.5069	.6553	5.38	5.16	5.38	5.16	4.75	4.41
2.80	+16.7	+10.0	.836	.758	.1135	.2151	.5684	.5187	.6705	5.50	5.28	5.50	5.28	4.86	4.52
2.90	+20.8	+12.5	.855	.775	.1161	.2200	.5813	.5305	.6858	5.63	5.40	5.63	5.40	4.97	4.63
3.00	+25.0	+15.0	.874	.792	.1187	.2248	.5942	.5422	.7010	5.75	5.52	5.75	5.52	5.08	4.73
3.10	+29.2	+17.5	.893	.809	.1213	.2297	.6071	.5540	.7163	5.88	5.64	5.88	5.64	5.19	4.83
3.20	+33.3	+20.0	.912	.826	.1238	.2346	.6200	.5657	.7314	6.00	5.76	6.00	5.76	5.30	4.93
3.30	+37.5	+22.5	.931	.844	.1264	.2395	.6329	.5775	.7467	6.13	5.88	6.13	5.88	5.41	5.03
3.40	+41.7	+25.0	.950	.861	.1290	.2444	.6458	.5892	.7619	6.25	6.00	6.25	6.00	5.52	5.13
3.50	+45.8	+27.5	.969	.878	.1316	.2493	.6587	.6010	.7771	6.38	6.12	6.38	6.12	5.63	5.24
3.60	+50.0	+30.0	.988	.895	.1342	.2542	.6716	.6128	.7923	6.50	6.24	6.50	6.24	5.74	5.34
3.70	+54.1	+32.5	1.007	.912	.1368	.2591	.6845	.6246	.8076	6.63	6.36	6.63	6.36	5.85	5.45
3.80	+58.3	+35.0	1.026	.929	.1394	.2640	.6974	.6364	.8228	6.75	6.48	6.75	6.48	5.96	5.55
3.90	+62.4	+37.5	1.045	.946	.1420	.2689	.7103	.6482	.8381	6.88	6.60	6.88	6.60	6.07	5.65
4.00	+66.6	+40.0	1.063	.967	.1446	.2738	.7232	.6600	.8533	7.00	6.72	7.00	6.72	6.18	5.75

* Minimum scale rate. † All the wage rates to the right are those of the 1918 scale.

How to Socket Wire Rope and Retain Its Full Strength

Why Socketed Ends Fail—How to Make the Joint—Clean Wires with Gasoline, Hydrochloric Acid and Alkali—Use Pure Zinc Instead of Babbitt—All Instructions to Socketers Should Be in Writing

BY DONALD J. BAKER
Charleston, W. Va.

HOW to socket wire rope most effectively is a problem that has never received the attention around the mine that its importance warrants. At shaft operations and plants having steep gravity planes the hoisting ropes are continually subjected to strains and stresses. Not only should they be frequently inspected but every effort should be made to develop a thoroughly systematized procedure for socketing them when new or for resocketing them when through daily wear and tear the socketed end has become no longer fit to withstand hard service.

Chief among the details to be borne in mind when placing an order for rope to be employed in a shaft or on a plane is that an adequate length should be provided. If only the requisite lineal footage is placed in operation, it will become necessary later to splice in additional short lengths to replace sections of several feet in length which have been cut off at the socket. Such rope soon becomes unsafe to use by reason of its diminished strength.

It is far better, and much more economical in the long run, to employ in the beginning a rope that is from 25 to 50 ft. longer than actual initial requirements. Yet it is not uncommon to see the drums of hoisting engines entirely bare when the rope is paid out.

Stresses sustained in heavy and continuous hoisting, while having their effects on all sections of the rope, are more noticeable in certain places than others. That portion of rope adjacent to the socket as well as that near or in contact with the shaft side of the sheave wheel when the cage is at rest at the bottom are subjected to more wear than is the rest of the cable. When the cage or skip comes to rest at the bottom of the shaft, the rope is continually vibrating. The extremity or point of this vibration ends at the sheave wheel and at the socket on the cage itself.

CUT OFF SIX FEET OF ROPE EVERY SIX MONTHS

This is more wearing on the rope than the actual hoisting cycle. Not only is there a tendency on the part of the cable to stretch throughout its entire length at such times but shearing forces are exerted on the strands at the socket. It is considered wise, therefore, to cut off and scrap every six months or a year 6 ft. or so of the rope nearest to the socket. The section nearest the sheave wheel will then be lowered away from the point of undue stress, and consequently will not be subjected to any forces other than those exerted in a straight pull. It is always well to provide a drum that can carry the extra length of rope; otherwise in a few months it may be necessary to scrap the whole rope as too short for the service as a result of having become worn out at its lower extremity.

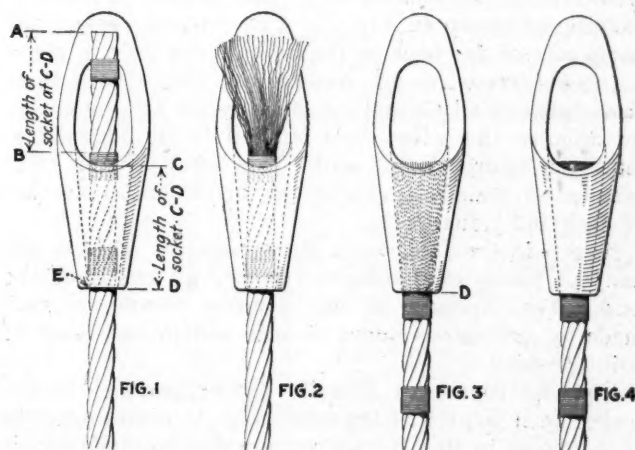
Heretofore it has been a fairly general practice in socketing rope around coal mines to pull a 6-in. length of the strands through the socket, bend them backward on the socket exterior, and then fill the interior with

babbitt metal. The bent strands are then wired around the outside of the socket, and the job is considered as perfect as such a joint can be made.

In the first place, babbitt is not the most suitable metal for use as a filler; secondly, little care is exercised in the proper cleaning of the materials. These two factors alone in many instances give to the finished job a strength of only 50 per cent of the rope's capacity.

Recent experiments in the art of properly socketing wire rope do not tend to substantiate the claims made for older practices more generally in use. Infinitely more care should be exercised in cleaning the individual strands that are finally to rest within the socket. Then, too, unalloyed zinc is considered as being a far better socketing material than babbitt.

Two of the largest operators in the Pittsburgh district for several years past have followed a plan for socketing wire rope which it would be difficult to improve upon. The proper socketing of such rope is considered an operation of the utmost importance, for by it safety is promoted and valuable plant operation may be conserved at a time when it is most essential. The men in charge of socketing operations at too many plants are given merely verbal instructions as to how to proceed. This practice permits irregularities to creep into the work as a result of dimmed or hazy memories of the instructions actually received. The engineering departments of the companies referred to, however, have prepared tracings of what are now recognized as the four necessary steps in the operation. Furthermore, instructions (blueprinted from tracings) are issued covering the way in which each step of the work should follow its predecessor in natural sequence. Both blueprints are made on the same sheet, which is supplied to



FOUR STAGES IN THE SOCKETING OF WIRE ROPE

Three seizings are put on the rope. The socket is carefully cleansed of paint and grease and rounded out smoothly at E. The rope is then passed into the socket as indicated in Fig. 1. The end seizing is then removed; the wires are untwisted until they stand out like a broom, as in Fig. 2, and the hemp core is cut as far as the second seizing. The rope is then drawn back as in Fig. 3, and pure zinc at the proper temperature is poured in and the two remaining seizings are removed.

the men who have charge of the work. If the directions are followed to the letter—and there is small chance for deviation under the system adopted—there is only a remote possibility of the lives of men being jeopardized or of operations being tied up as a result of the rope pulling out of the socket.

The instructions here given are considered the most effective known today. Proceeding in accordance with them permits of the rope being used to a full 100 per cent of its capacity, instead of only 70 per cent, the figure that has long been accepted as safe where the strands are bent back on the socket and babbitt metal used as the filler.

Full directions for socketing wire rope as issued by one of the above-mentioned companies are as follows: Before cutting, the rope should be securely seized at the end with $\frac{1}{8}$ -in. black annealed wire tightly wrapped on in a single layer. Two additional seizings should be placed on the rope as indicated in Fig. 1 of the accompanying illustration. The second seizing should commence at a distance from the rope end equal to the length of the socket itself (as *CD*, Fig. 1), plus $\frac{1}{4}$ in., in order that the freed wires will finally project $\frac{1}{4}$ in. through the socket and to the outside.

The third seizing should be placed at approximately the same distance back of the second as the second is from the first. Care should be taken that these wrappings are absolutely tight and secure. It is extremely important that the main lay of the rope be prevented from untwisting, as otherwise the tension of the strands may not be equal to the strains upon them when the load is later applied. When all three seizings have been made, a hacksaw should be used for cutting the rope.

GREASE, PAINT AND SHARP EDGES REMOVED

Next, the internal surface of the socket should be thoroughly cleansed, and all paint and grease removed. The small-end opening of the socket should be smoothly rounded out at *E*, as shown in Fig. 1. This will remove any sharp or jagged edges that may have been formed in the casting or forging. The rope should be passed through the socket as indicated in Fig. 1.

Now remove the end seizing from the rope, permitting the other two wrappings to remain. Next untwist the wires in all the strands until they stand out, broom-shaped, as shown in Fig. 2. Cut out and remove the hemp core as far back as the first seizing now in place.

Dip the free wires into gasoline and then cleanse them thoroughly of all oil and grease. Follow this operation by dipping the wires into a solution of commercial muriatic (hydrochloric) acid. This latter dipping must remove all scale and expose the bright metal surface of each individual wire.

Next, dip the free wires into a solution of soda ash and hot water to thoroughly remove all traces of the acid. The strength of this solution should be that made by adding one ounce of soda ash to one quart of boiling water.

Pull the rope back into its proper position in the socket until point *B* of the rope (Fig. 1) comes opposite *D*, as shown in Fig. 3. Be certain that both the socket and the end of the rope are perfectly dry before either is brought into contact with the molten zinc. If one or the other is wet, steam will be formed, the zinc caused to fly, and severe burns may result.

Warm the exterior of the socket with a blow torch. See that the socket lines up with the axis of the rope,

and then pour the socket full of molten zinc. The metal should be heated slowly in order that it may melt without burning. It must not be too hot or it may anneal the ends of the wires. From 700 to 800 deg. F. should be sufficient heat. To determine just when the metal has reached the most desirable temperature for pouring, the so-called "stick method" may be employed with safety.

A soft dry pine stick when dipped into the hot zinc and quickly withdrawn must not have any of the metal adhering to it; neither should it show signs of being much burned or charred. If the zinc adheres to the stick, it is too cold for pouring. If the stick appears a pale brown, then the metal is too hot to obtain the best results. The exact temperature of the zinc is reached when the stick shows no signs of zinc adhesion or of being burned.

Pour the molten metal slowly and evenly, allowing some of the zinc to flow entirely through the socket before plugging the bottom end. This insures the complete filling of the holder. If dross should form on the zinc in melting, be careful to let none enter the socket during the pouring process. After the zinc has fully solidified, carefully remove the remaining seizing wires. Great care should be exercised in doing this, that the wires of the hoisting rope be not cut or mutilated. Never use a hammer and chisel for cutting the binding wires.

The efficacy of the process here detailed depends on absolute cleanliness. The free wires must be perfectly clean in a chemical sense. After dipping in the various solutions, the wires must not under any circumstances be touched by the hands.

It has been found that the small amount of extra time consumed in socketing the rope in this manner, as against some of the older hit-and-miss methods, is of little importance. "Anything that is worth doing is worth doing well," and this old adage is quite as appropriate in socketing wire rope as in anything else. It will be found that by following this method the life of the rope is increased, little danger of an accident is incurred, and greater weights may be suspended from a given size of rope and socket. Certainly these are factors of the greatest significance.

Progress and Lost-Material Records Aid in Map Making and Inventory Keeping

ONE of the important duties of the engineering corps at a colliery is to keep the progress map of the mine up to date. Too often, however, this work is not done with the degree of promptitude and exactness it merits. In most cases the incompleteness is not the fault of men on the corps, for the data supplied to them are often vague and insufficient. Where the progress figures are collected by the members of the corps themselves in weekly visits to the mine accuracy is obtained, but the work is quite costly.

On the other hand, if the corps visits the mine at intervals of one or two months, the men are not familiar with the territory to be covered, and time is lost measuring up the progress made in places where the work performed does not warrant any such careful survey. Furthermore they find rooms have caved, in places only partly and in other places so as to be entirely inaccessible.

In the former case, though the place could be entered

for purposes of inspection, it is really not safe to do so. So in places partly or wholly caved an approximation has to be made as to the length of the room at its termination. The pit boss in entering yardage in his notebook is interested in obtaining information which he alone requires, and he does not lay great stress on the progress map, believing that the engineering corps will, and should, take care of that. If appealed to for information covering a caved place of one or two months standing, he resorts to his notebook for yardage and relies upon memory for more detailed information.

A system of some kind, in which records are kept of progress and conditions underground, should be maintained at every mine. The practice often has been urged but seldom has been followed. No doubt the importance of these records as well as of others will be recognized more fully hereafter, for with their aid the task of the engineering corps will be simplified. Referring to the reports, the corps will have a clear insight as to what it has to do when it gets underground.

An excellent method of keeping records of the progress and conditions in the various places is used at the Jean mine of the Bertha Coal Co., Dinsmore, Pa. In taking his notes on yardage, R. M. Johnson, the mine boss, spends a little more time than is customary and enters descriptive notes of general conditions in each place. An example covering one portion of this mine is shown in record form in the table herewith. For this purpose an ordinary journal, 10 x 16 in., ruled horizontally, is used. These ledger entries are carried across a double page, allowing ample space for complete notes. As the rooms in this mine are driven in one direction only, a double page is all that is required for records of rooms driven from any one butt roadway. The notes are brought up to date after yardages are taken in the places and are entered in ink, longhand.

GUESSING HOW MUCH COAL HAS BEEN EXTRACTED

The record shown is almost self-explanatory, but the purposes of the different subdivisions ought to be discussed. Room No. 4 is a good representative of the kind of room which needs a record of this kind. After 30 ft. of pillar was out the roof caved and the rest of the coal was lost. The engineer, entering the neck and seeing the cave, would be at a loss to assume how much was taken out and how much left. However, the room was not driven up the standard distance of 230 ft., yet no reason was recorded for stopping it. Had this been added, the story would have been more complete.

The reason may be inferred from an entry under the heading "Remarks," where it is stated that the place stood idle for two months. Probably this accounts for the room not having been driven through, though it would be well to mention any such reason. The rooms are widened out on one side only, so that the track lies close to one rib. The last phrase under the heading "Remarks" develops certain facts. Evidently the roadway in the room has been posted along the entire length of the track. After standing for two months the roof showed signs of weakening. It was then decided to repost the trackway to insure clear passage for cars.

A so-called "half-and-half" system (half advance and half retreat) is followed in this mine, and therefore the pillar face in this room, which was being drawn on the "advance," could not progress beyond the break line. Dangerous falls along the length of the room necessitated its abandonment. Most of this story is substantiated under these headings. For plotting on a map,

more information than "15 ft. rib lost" would be necessary. It might be anywhere along some 200 ft. of pillar and in one or two places.

In *Coal Age* issue of Nov. 25, 1921, an account is given dealing with the method of keeping records at an up-to-date mine in the Pittsburgh district, where reports are made out daily by the locomotive crews. At this same mine the cars are numbered and any work done on a particular car is charged against the car by number. At the Jean mine the locomotives are numbered and each motor has its own stall in the locomotive barn. Motor repairs are done outside, it being a drift mine. The locomotive crews are required to fill out daily reports on an itemized sheet as below.

The repairs on any one of the locomotives, including labor and parts, are charged up to it by number. Where more detailed reports are not deemed advisable, this

MOTORMAN REPORT	
Mine.....	Date.....
Name.....	
Cars Hauled.....	
Coal.....	
Slate.....	
Material.....	
Ampere Hr.....	
Trips.....	
No. Men on Section	
Loco. No.....	

form will serve a double purpose. From it one may arrive at the locomotive cost per ton of coal mined and also the man-power required per ton of coal during any one year.

Records of operations were unheard of a number of years ago. Yet by their means an appreciable cut may be made in the cost of operating, for they supply the necessary information for a comparative study of section with section, man with man, year with year, and finally determine the relative merits of different manufactured products.

RECORD OF PROGRESS AND MATERIALS IN SIXTH BUTT MAIN

Room	Face Advance in Feet	Rib Recovery in Feet	Remarks	Record of Materials
1	230	Rib all out	Clean; no coal lost	Material all out
2	230	Rib all out	Clean	Material all out
3	230	Rib all out	Clean	Material all out
4	200	30 ft. rib out; rest lost	*	Material all out
5	230	15 ft. rib lost; rest out	Due to caving	15 ft. rail; 1 tie lost; other material out
6	230	Rib all out	Clean	Material all out
7	230	Rib all out	Clean	Material all out
8	230	15 ft. rib lost; rest out	Caved	Material all out
9	230	Rib all out	Clean	Material all out
10	230	20 ft. rib lost; rest out	Caved	30 ft. rail, 3 ties lost; other material out
11	230	Rib all out	Clean	Material all out
12	230	Rib all out	Clean	Material all out
13	230	No rib	Last room	Material all out

*Place caved in because of standing; stood 2 months before rib was started; reposted place all along roadway.

Ventilation as a Safety Factor in Mining*

BY C. LORIMER COLBURN†

AN OPERATOR has not done everything in his power to make his mine safe if he has neglected to install a positive system of ventilation, for it is not safe to depend on atmospheric conditions for supplying air to the mines.

As a rule, large mines with extensive workings are equipped with modern ventilation systems. Some of these systems are efficient, while others, on account of being poorly designed, do not distribute air to all the working faces. Many mines, especially the smaller ones, depend upon natural air currents for their ventilation.

The laws of some states require two exits from a mine. When two openings to the surface are provided a flow of air usually is set up. This current may be beneficial or detrimental, depending on atmospheric conditions. A change in the atmospheric pressure may start a draft in an opposite direction from that desired.

Is it best to leave such an important contributor to mine safety as ventilation to the uncertainty of weather conditions, or is it best to install a fan and always keep the movement of air through the property under control? Without trying to answer this question let us review a disaster that recently occurred at the Satanic mine, near Morrison, Col.

FIGHT MINE FIRE IN AN ALMOST VERTICAL SEAM

The Satanic is a small coal mine which has been opened by a vertical shaft about 200 ft. deep. The coal seam stands almost upright, dipping to the east at an angle of 85 deg. The shaft was sunk in the country rock and drifts were driven to the coal seam on the 100- and 200-foot levels. There are several openings to the surface where the coal seam has been worked out. A small fire started in this mine from spontaneous combustion; it originated in one of the worked-out portions of the mine. On Dec. 13, 1921, the superintendent, with several men, went underground to erect stoppings in order to seal the fire area and to isolate it from the rest of the mine. These men worked underground in the morning without discomfort.

In the afternoon the wind changed and there was at the same time an abnormal rise in temperature outdoors which changed the ventilation in the mine, driving the fumes from the fire area to the place where the men were at work. The fumes contained carbon monoxide, and all five men were overcome almost simultaneously. Two men from the surface went down to rescue these men. In the meantime the direction of wind had changed and the men who went underground passed the body of one man who had been overcome. One of the men was looking for his son, who was one of the five that had succumbed. While they were underground the direction of the air current changed again. The father was overcome and lost his life and the second man barely managed to make his escape.

The superintendent, four of his miners, and the father of one of them, lost their lives in this disaster. If this mine had been provided with fans and if the ventilation had been under control, this disaster would not have occurred. Many of the small mines throughout the country are hazardous on account of lack of controlled

ventilation. Many of these mines have been working for years without inconvenience. Does the disaster at the Satanic teach us a lesson that all mines, whether large or small, coal or metal, should have positive ventilation, or is this just an exceptional case?

Centrifugal-Pump Primer Handles Only Air And Not Water, Thus Saving Power

MOST mining men have had their experiences—and frequently they have been none too pleasant—with air-bound centrifugal pumps. These machines must be

filled with water in order to operate, and consequently in most cases some means

must be provided for priming. The exact shape that such means will take depends, of course, upon circumstances and local conditions. In many instances a priming pump of some sort is essential. To meet the need for a machine for this purpose the pump shown in Fig. 1 has been placed on the market by Barrett, Haentjens & Co., of Hazleton, Pa. It has no inlet valves. Air enters through openings in the sleeves (1). The piston (2) overruns the openings and discharges the air to the open through the leather-faced valves (3). Both of these valves slide over the piston rod, their motion being controlled by the spring (4). The driving mechanism is enclosed, but ready access may be gained by removal of the cover (5). Drive is made through a short belt from a motor mounted on the bedplate.

Water is prevented from entering the vacuum pump by means of a vacuum breaker installed about two feet above the top of the cen-

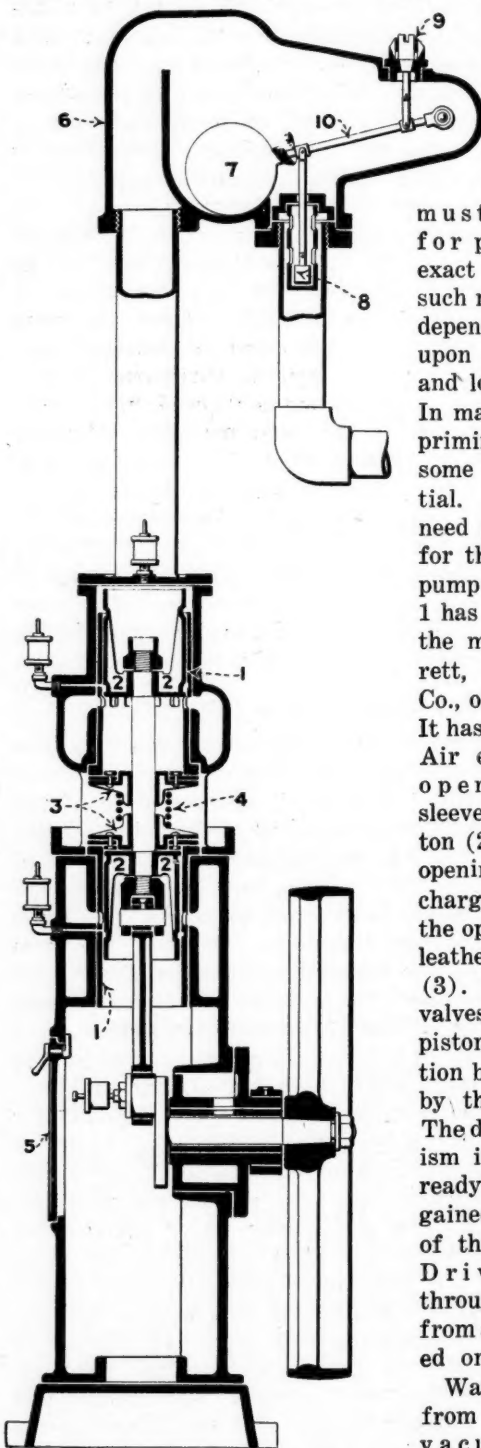


FIG. 1. CROSS-SECTION OF PUMP PRIMER

The priming pump is shown in the lower part of the illustration and the vacuum breaker is to be seen in the upper part.

*Excerpt from *National Safety News*.

†Mining engineer, U. S. Bureau of Mines, and safety engineer, National Safety Council.

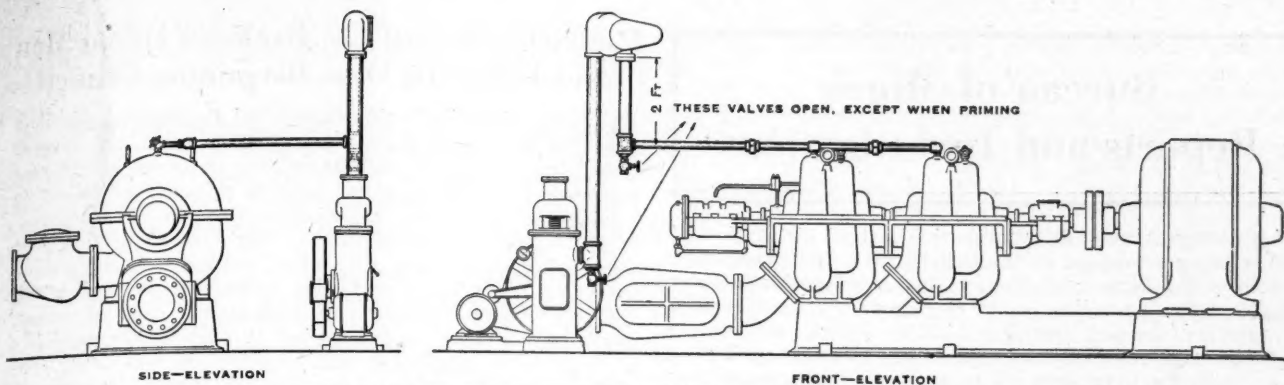


FIG. 2. FRONT AND SIDE ELEVATIONS OF MOTOR-DRIVEN CENTRIFUGAL PUMP FITTED WITH PRIMER
Several centrifugal pumps can be served by a single priming device but the priming pumps must be so arranged that they can be readily drained, lest the water they contain be drawn into the housing and cause the float to rise and open the air valve before the pumps are primed.

trifugal pump. The priming pump thus handles air only and as a result consumes but little power. In operation, after the drain valves on the main pump are closed and the priming valves opened, the vacuum pump is started. This draws water through the suction pipe and pump casing and finally into the vacuum housing (6)—see accompanying cross-section. Here the float (7) begins to rise, carrying with it the check valve (8) and the air valve (9), both of which are attached to the float lever (10). Air accordingly enters the housing through the valve (9), reducing the vacuum and allowing the water to fall again. After a few fluctuations both water level and float remain steady, the quantity of air entering the housing being equal to the quantity handled by the pump and the vacuum maintained being equal to the difference in elevations of the water in the sump and in the vacuum breaker. The centrifugal pump is now primed and remains in this condition as long as the priming pump continues to run.

When now the main pump is started and pressure builds up within it water flows over to the vacuum breaker, causing the float to ascend until valve (8) comes against its seat, checking this flow. Several centrifugal pumps may be served by one of these priming devices, but the priming pumps must be so arranged that they can be completely drained. If this is not done the water contained may be drawn into the housing, causing the float to rise and open the air valve before the pumps are primed.

In general a priming or globe valve should be attached to the highest point of each stage of each pump. This statement is not strictly true, as certain types of pumps require priming of only one stage. The priming valves should be attached to the vacuum breaker as shown in the drawing.

Broken Mine Timber Saved by Resawing

DURING 1921 the Philadelphia & Reading Coal & Iron Co. saved 2,500,000 ft. of timber by sawing into lumber, etc., old mine props no longer safe or suitable for mine support, due to breakage and decay. By salvaging this material the drain on the nation's timber resources was lessened by just the amount sawed and put to use again.

Years ago this material was burned at each colliery as so much waste, thus losing not only the material consumed but the labor of burning it. Today all but the much decayed and damaged props are saved for sawing into plank and wedges, and the remainder, partly suitable for fuel wood, is burned at the colliery incinera-

tors. Even this would not be burned were a market at hand for firewood. Due to the proximity of the coal mines no one seems to want to burn old mine timbers for fuel purposes.

The company now has 22 old mine-timber sawmills in operation without which it would be necessary to purchase in the yellow-pine region of the South 2,500,000 ft. of mine plank, in addition to the amount now necessary to purchase. Gradually as the forests of the South are cut over and depleted, the savings effected at these mills will become more pronounced. As it is believed that the exportable supply of Southern timbers will be gone in 15 years, old mine-timber sawmills serve to lengthen that supply to Northern consumers by the amount saved in that period, or 37,500,000 ft. by this company. Other anthracite companies having similar mills are effecting like economies.

Eye Accidents Exceed Expectation

BEFORE compensation was paid, eye accidents were not thought sufficiently numerous to need serious consideration. It is now known that the losses of arms or of hands or of legs or of feet separately involve less aggregate compensation than loss of eyes. Unfortunately protecting the eye is less easy than might be thought. Goggles must be strong so as not to constitute in themselves an added hazard, and they, consequently, are not as easy to wear as spectacles or automobilists' goggles. The workman who wears them in the mines must exert himself, like all mine workers, and the perspiration of the worker makes the use of goggles annoying and is apt to cause soreness of the parts in contact with them.

Death cases, of course, lead all others, but eye injuries have to be compensated by sums of money—much smaller, it is true, but still comparable in importance with injuries resulting in death. Thus in ten bituminous coal counties—Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Mercer, Washington and Westmoreland—the compensation awarded to Jan. 1, 1922, from the time the Workmen's Compensation Act of Pennsylvania became effective Jan. 1, 1916, has been:

Death cases.....	\$9,818,441
Loss of eyes.....	1,313,582
Loss of arms.....	234,777
Loss of hands.....	707,887
Loss of feet.....	373,467
Loss of legs.....	332,976
Permanent total disability.....	159,886
Ordinary disability.....	3,977,086

Total \$16,918,102

Bureau of Mines Reports and Investigations

AN INVESTIGATION REGARDING the heat of distillation of coal is being conducted at the Pittsburgh (Pa.) experiment station of the Bureau of Mines. This investigation has for its object the determination of the amount of heat evolved or absorbed through chemical reaction during the process of destructive distillation of coal. Such information will be of value to the byproduct coking and gas industries in that it will give them a more accurate knowledge of the thermal requirements of their ovens and retorts. The problem is being attacked by distilling small amounts of coal in a bomb calorimeter, the necessary energy being supplied electrically and being accurately measured by electrical means. The heat effect of the standardized amount of electrical energy required to distill the coal is measured in the calorimeter and compared with the effect of the same amount of energy supplied to the products of distillation in the calorimeter during a parallel experiment. The difference between the two effects gives the reaction heat of the coal, positive or negative, as the case may be.

WORK ON THE DEVELOPMENT of new types of coal-sampling apparatus is being done at the Washington (D. C.) office of the Bureau of Mines, under the direction of O. P. Hood, chief mechanical engineer. The practicability of coal inspection on a large scale depends upon the development of sampling devices which can obtain a true representative sample with the least possible interference with transportation methods. This means the development of apparatus somewhat comparable with apparatus used for loading and unloading coal. A machine has been developed which will drill a 6-in. hole vertically through coal carried in a car and abstract the cuttings. Complete detailed plans have been made for a single sampler adapted to take samples from truck loads at the Government Fuel Yard. General plans also have been developed for a multiple sampler adapted to take samples from open-top cars in a railroad train without distributing the train or unloading the coal. Only the reduced laboratory sample is to be taken from the sampler.

INVESTIGATION BY THE U. S. BUREAU OF MINES of gas masks for use of train crews in railroad tunnels has been completed. Results of the tests will soon be published by the bureau in a technical paper entitled "Tests of Gas Masks and Respirators for Protection from Locomotive Smoke in Railroad Tunnels, with Analyses of Tunnel Atmospheres," by A. C. Fieldner, S. H. Katz and S. P. Kinney. A small mask was devised that fits conveniently into a coat pocket, and in actual service with locomotive engineers and firemen was found to last two to six months before distasteful gas penetrated.

TO DETERMINE THE NATURE AND QUANTITY of poisonous gases produced when fires in a mine, in a closely confined space, were extinguished with carbon tetrachloride and with foamite fire extinguishers experiments were made by the Bureau of Mines at the request of the West Virginia Department of Mines. Carbon tetrachloride developed the poisonous gases phosgene and hydrogen chloride in dangerous concentrations. No dangerous gases other than those coming from the fire itself were found with the foamite.

AT THE PITTSBURGH EXPERIMENT STATION OF THE U. S. BUREAU OF MINES in connection with the investigation of coal-storage problems, coal has been exposed to excess air for three hours at 150 deg. The amount of oxidation products formed and the amount of oxygen absorbed are taken as a measure of the tendency of the coal to ignite spontaneously. The method has been tested on Newfield (Freeport) coal and Texas lignite with fairly consistent results.

Pacific Coast Coal Co. Excludes Union Men And Forms Its Own Bargaining Council

AT THE time the Pacific Coast Coal Co. severed relations with the United Mine Workers of America, and several times since, it announced that as soon as its working forces approached normal it would adopt a principle of collective bargaining, giving its employees a voice in the discussion of their industrial relationships. On Jan. 25 of this year the Pacific Coast Coal Co., after extensive investigation, presented its "plan of collective bargaining through which not only the fundamentals of employment such as wages, hours and working conditions, but the details of practically all matters in connection with employment and living conditions" will be "determined through mutual agreements between appointed representatives of the management and elected representatives of the men."

In their constitution it is expressly provided that "membership in, or any activity in behalf of, the United Mine Workers of America, or membership in, or activity for, any other mine-labor organization will be a bar to employment." In explanation of this clause the company says that the union "by its actions with respect to the coal-mining industry in the State of Washington has demonstrated that the policy of its leaders is not that of collective bargaining but rather of dictation and that its purpose is to force compliance with its policies in total disregard of the welfare of both employers and employees, even to the point of forcing financial ruin upon the business of the employers and hardship, privation and even suffering upon its own members."

It also is provided that while alien employees are to receive the protection and privileges of the joint organization, they shall not be allowed to vote or hold office in the organization unless they have declared intention to become citizens.

Under the plan mine councils are formed at each of the mines—Black Diamond, Newcastle, Franklin, Burnett and Issaquah. These will consist of elected representatives of the employees and appointed representatives of the management. There will be twice as many of the first as of the second, but, as the management representatives, at least

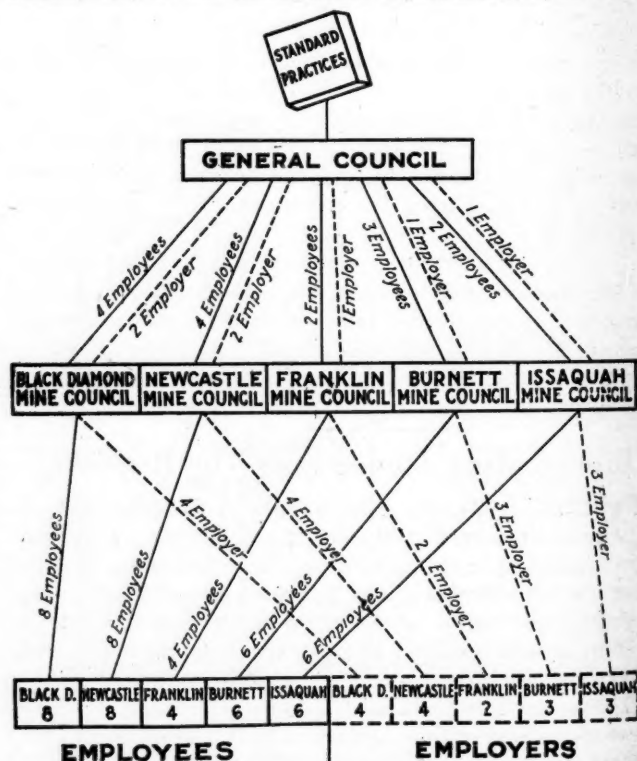


FIG. 1. CHART SHOWING COMPOSITION OF COUNCILS

Employees and employers meet in separate mine councils and these in turn are represented in a general council, the operations of all being regulated by the established standard practices, which, however, may be changed by appropriate action.

in a full house, will have two votes each, a balance will be struck between the delegates of the men and the company. The votes will in every case be by written secret ballot.

As will be seen in Fig. 1, the mines will not be equally represented but will be accorded a council having members proportionate to the number of men employed. Not more than one representative is to be elected for each one hundred employees, but no mine is to have less than two employee representatives.

The men at each mine will not vote for representatives collectively but they will be divided up into groups, somewhat strangely termed "zones." Just what these zones are may be best comprehended by detailing those formed

at the Black Diamond mine. Zone A consists of miners on the Little Seam; Zone B, miners on the Big Seam on the eighth and ninth levels; Zone C, miners on the Big Seam on the tenth and eleventh levels; Zone D, inside haulage men; Zone E, inside timber men; Zone F, all other inside men; Zone G, outside mechanical men, and Zone H, all other outside men. Each of the eight zones has one representative.

A central council meets at Seattle once a month. It would be a large and expensive body if all the thirty-two employee representatives and all the sixteen company representatives were to be members of this central council. Consequently it is arranged that there shall be only fourteen employee members and six management members, each employee member shall be entitled to one vote and the management representatives, as in

attending the central council meetings will receive actual transportation expense and \$10 per day to cover the cost of their room, meals and wages lost. If the management calls special meetings the company will foot the bill, but if the employee representatives call them the employee councilmen will pay all their own expenses. A quorum consists of two-thirds of each class of representatives.

The employee mine councilmen serve for one year only and cannot be elected for two consecutive years. When they are elected to fill vacancies in unexpired positions due to recall, resignation or other causes they must retire at the end of the time for which their predecessor was elected, with no hope of re-election for a period of twelve months. Representatives absenting themselves from council three times without satisfactory excuse to the committee chairman will be held to have resigned. An employee councilman may be recalled by a secret ballot of the men in his voting zone if the ballot shows that two-thirds of the voters desire his recall.

HOW GRIEVANCES ARE FILED AND HANDLED

The administration has full power to select, hire, assign and promote employees. When men are discharged or quit they may file a grievance, but not after they have drawn their pay unless they obtain permission from their supervisor. Grievances between a mine employee and his supervisor are taken to the mine committee chairman, who takes the matter up with the supervisor next in authority over the supervisor mentioned or with the mine superintendent.

If this company official's decision is unsatisfactory to the committee chairman or to the complainant it goes to the mine council at its next regular session. In case of a deadlock it goes to the central committee. If deadlocked there it may go to the president of the company.

If the president does not like any decision of either mine or central council he can veto it. If, however, all the employee representatives in the central council do not like his decision or disapprove of his veto then it may be appealed to outside arbitration, the employee representatives selecting one arbitrator, the management representatives one and these two a third.

If an agreement as to the arbitrator be not reached within seven days either side may ask the Judge of the U. S. District Court, Western district of Washington, Northern division, to name the third arbitrator, who shall be accepted immediately by both sides. The decision of a majority of the board shall be final, and the decision shall form part of the standard practices of the company. A mutual-service director has been appointed to act in an advisory capacity. He has no vote in the councils but he may speak when they meet and discuss matters informally with the employees and the management.

WHILE ADMITTING THE SERIOUSNESS of the pollution of streams by coal mines of Pennsylvania, officials of the U. S. Bureau of Fisheries in a discussion of the pollution question before the House Appropriations Committee opposed drastic legislation which might injure the mining industry. It was said that some waters could absorb more acids than others and that while some pollution might be injurious to fish it might not be injurious to public health. It was said that the situation at Pittsburgh was complicated by wastes from abandoned mines and that further investigation was needed, it being a difficult situation to handle. Officials of the Fisheries Bureau said the country would not approve any attempted anti-pollution legislation which would interfere seriously with the operation of coal mines in western Pennsylvania.

SEVENTY-TWO PER CENT of the mines and 91 per cent of the annual output of Illinois coal mines is handled by mechanical haulage, mostly electric locomotives, of which there are 1,424 in use at present in Illinois. Sixty-one and one-half per cent of the total annual output also is undercut by electric mining machines, of which there are at present 2,750 operating in the mines of the state.

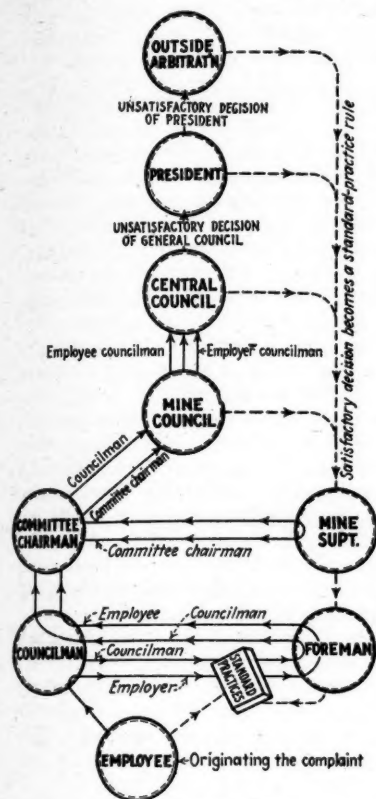


FIG. 2. TRAVELS OF A GRIEVANCE

The president has the right to veto decisions on grievances made by either mine or central council, but, if all the employee representatives in the latter council so desire, the matter must go to an outside arbitration board.

the mine councils, to an equal total number of votes equally distributed among them, all votes to be cast separately and all by secret ballot.

The members of this central council will be elected by the mine councils. At meetings of the council the management may be represented by the manager of the mines, the vice-president and the president when they are required or desired to attend. Whether they are entitled to a vote is not stated.

This central council shall be delegated full authority and responsibility in all matters having to do with employment relations, including wages, hours, working rules, working conditions, safety, sanitation, housing, merchandise, store and hotel service, hospitals' and physicians' services, recreations and such other matters as the representatives of both sides come to feel have a relation to their work and their effectiveness as members of the plant.

The mine councils are obliged to leave to the central council such matters as basic wage scales, hours or general working conditions or other matters of such breadth of scope as to be of general and equal importance to all the employees of all the mines operated by the company.

All the expense of the monthly meetings of mine councils and the central council will be paid by the company. Those



Problems of Operating Men

Edited by
James T. Beard



Working Coal on Steep Pitches

Slope Driven on Full Dip—Room and Pillar System Used on the 400-Ft. Level—Longwall Advancing, on the 600-Ft. Level—Gangway Driven in Soft Sandstone and Crosscut to Air-course in the Coal

HAVING had an extensive experience, both as a miner and having charge of mines as superintendent and mine manager, working coal where the pitch of the seam ranged from 30 deg. to vertical, I read with deep interest the article of George Watkin Evans, *Coal Age*, Jan. 26, p. 157.

My experience has covered a period of thirty years and was gained in the highly pitching seams of the Pennsylvania anthracite region and in the states of Washington, California and New Mexico, as well as the provinces of British Columbia and Alberta, in Canada.

First, let me say that the idea of driving the main entries and air-courses in the footwall or hanging wall of the seam and working out the coal on a stepped longwall system is not new, it having been employed for many years in coal mines, both in this country and elsewhere.

EXPERIENCE ON STEEP PITCHES IN CALIFORNIA MINES

During the year 1900, I was in charge, as general inside mine foreman, of a mine at Tesla, Cal. The dip of the seam varied from 50 to 65 deg. The mine was opened by a slope driven on the full dip of the seam. A double-deck cage was used for hoisting and this operated on a track having a wider gage than the mine cars.

The cars were inclosed in the cage and could not get away while being hoisted. At the surface, the cars were pushed off automatically. The entire equipment was a safe means of handling coal in steeply pitching seams and there were few delays from wrecks occurring in the slope.

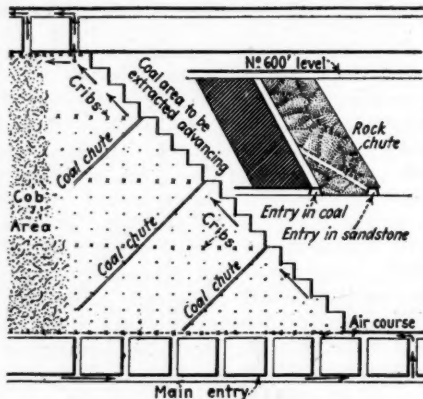
From the 400-ft. level to the outcrop of the seam, the coal was worked by the room-and-pillar system, combined with chutes and pillars, both the rooms and the chutes being driven up on the full pitch of the seam. Another system sometimes employed was to drive the chutes and rooms across the pitch, at a suitable angle to run the coal to the entry below.

The angle system is very good where the coal is reasonably hard, so that the hanging rib will not fall away and cause the roof to cave, which would mean much expense and labor in timbering. I used that system with

great success at the Wilkeson Coal & Coke Co.'s mine, at Wilkeson, Wash., where I was employed.

In the No.-3 mine at that place, the coal pitched at an angle of 75 to 80 deg. The accompanying figure shows the stepped longwall advancing system installed on the 600-ft. level, in that mine. I believe this is practically the same method of mining described by Mr. Evans, in the article to which I have referred, the only difference being the system at Tesla was longwall advancing, while that described by Mr. Evans was on the retreating plan.

The system is described briefly as follows: From the main entries, chutes were driven up in the coal on 40-ft. centers and partitioned off to provide a good manway on one side. A counter airway, or air-course, was also driven



CROSS-SECTION AND DETAIL IN STEEP SEAM

in the seam, about 40 ft. above the main entry.

Starting from the air-course, the coal was worked out on the longwall-advancing, stepped system, as shown in the figure. The places were double-shifted. The coal was of such a nature as to require no blasting, mining readily with the pick. At times, it was necessary to post and lag the face to prevent the coal from running freely.

Cribs or cogs were built in rows, 40 ft. apart on the pitch and 10 ft. apart on the strike of the seam. A series of sheet-iron chutes were carried up between these cribs, for the purpose of conducting the coal down to the chutes leading to the main entry, where it was loaded into the cars.

The chutes served two purposes; they allowed the coal to run slowly down to the entry, thus reducing the breakage of the coal; and they also afforded an opportunity for the Japs to pick out the refuse and other impurities as the coal descends to the entry.

GANGWAY DRIVEN IN THE SANDSTONE

Owing to the heaving nature of the footwall, it was found expensive to maintain the haulage road in good condition for hauling the coal. As has been suggested by Mr. Evans, this difficulty was overcome by driving another gangway in the soft sandstone hanging wall, parallel to the old gangway driven in the coal. These two gangways were driven on 40-ft. centers and, at intervals of 400 or 500 ft., were connected by crosscuts.

As each new crosscut was driven, that section of entry, in the coal, was robbed and abandoned, saving all the timbers possible and using them again. The entry driven in the sandstone required very little timbering. Also, the stone was so soft that augers were used for drilling the holes and the cost of driving was much reduced.

In the later development of the work chutes were driven on an angle of 30 deg., from the sandstone gangway through to the seam where the counter entry, or air-course, was carried. This change proved a great saving in expense and was very successful.

J. W. POWELL.

Raleigh Wyoming Coal Co.

Edwight, W. Va.

Seal Off or Ventilate, Which?

Does removing or confining an existing danger afford the greater degree of safety—Purpose of sealing off—Effect in the mine—Reasons why sealing off may not prove effective.

MENTION has been made in *Coal Age*, not long since, of the discussions that took place at a meeting of the Coal Mining Institute of America, last December, regarding the relative safety of sealing off abandoned places in mines, or attempting to ventilate them.

The subject was presented by E. S. Moore, and the discussion that followed seemed to revolve around the question as to whether a greater degree of safety could be affected by sealing off places that had been worked out and abandoned, or ventilating them.

To my mind, the situation is fairly expressed by the general statement that a greater degree of safety is provided by the removal of an existing

danger, or adopting means for its prevention; rather than by attempting to confine such danger within limits.

First, it will be generally admitted that a ventilating current properly conducted can be made very effective in the removal of accumulations of gas from particular sections of the mine, unless extensive falls of roof form an impassable barrier to the passage of the air current.

DRILLHOLES SUNK FROM THE SURFACE TO REMOVE GAS

This condition will frequently occur and must be anticipated in considering the question of removing gas, from worked-out sections of a mine, through the process of ventilation. When that happens recourse must be had to drilling holes from the surface, in order to remove the gas. One of the objects of sealing off abandoned places is to avoid this expense, particularly in deep mines.

The most that can be expected to be accomplished through the ventilation of void places in a mine, is the removal of the gases accumulated therein and the reduction of the temperature of the air in the place. This cooling has but a slight effect to decrease the liability to spontaneous combustion in the mass of fallen material mixed with fine coal and slack, which is the general condition following the drawing of pillars in the abandonment of a place.

As is well known, the conditions following the drawing back of pillars, in a mine, are ideal for the creation of gob fires, and the production of dangerous gases, thereby. In view of these conditions, ventilation can hardly be said to be sufficiently effective in producing the greatest degree of safety in every case.

WHEN SEALING OFF IS NOT EFFECTIVE

With regard to sealing off places that are abandoned, the work to be effective must be done in such a manner as to make it impossible, under any conditions, either for the mine air to penetrate the inclosed space, or for the imprisoned gases to escape into the live workings.

Following are a few of the reasons why sealing off may not be effective: 1. The sealed area will be filled with atmospheric air, under the temperature and pressure of the mine, when the seals are first built. In time, the temperature within the inclosure gradually rises, tending to a more rapid generation of gases behind the seals. At the same time, there is an increased pressure within, which tends to drive out the accumulated gases, through any cracks or crevices that may exist in the seals or in the strata.

2. The seals erected are necessarily close to the caved portion and, unless there is a sufficient coal pillar surrounding the place, it will be difficult to make the seals air-tight. Owing to the broken condition of the strata overlying large abandoned areas, there are prone to be cracks and crevices through which the gases within can escape into the live workings.

3. Allowing that the stoppings are well built, making the place practically air-tight on completion of the work, there is no guarantee that it will continue to be so under the increased pressure of the overburden due to the extension of the workings.

4. In the lapse of time, there is no doubt that the oxygen content of the inclosed air will be reduced greatly. The resulting mixture of gases, though not explosive, quickly become explosive on the admission of fresh air to the place. A heavy fall of roof occurring within, the area would project this dangerous accumulation of gas into the mine air in the workings.

AVOID CONDITIONS THAT MAKE WASTE PLACES DANGEROUS

Personally, I am not an advocate of sealing off abandoned areas in a mine. It is dangerous to imprison any destructive force in a mine. By so doing, we establish intimate relations with a known and active enemy. There is no more elusive force or more difficult condition to control than that arising from the presence of gas in a mine.

It is, of course, wrong to criticise a plan severely without suggesting a remedy. In the present instance, improvement may be effected by reducing, as far as possible, all conditions that make waste places in a mine dangerous. Avoid leaving coal stumps when drawing back the pillars. Draw all timber and induce a fall of roof, so as to maintain as small a standing area as possible. It is true there must be some waste coal that cannot be recovered in the work of robbing.

The throwing of fine coal or slack into the gob when driving a place, however, can be prevented. All solid working places should be thoroughly cleaned of waste coal, which should be loaded out of the mine. Uniform pillars of sufficient size to prevent undue crushing should always be maintained in the first working, which will go a long way to avoid trouble in drawing back the pillars.

I. C. PARFITT.

Maple Ridge, Pa.

ANOTHER LETTER

KINDLY permit me to express my views on the question of sealing off abandoned workings of a mine, which was recently discussed by members of the Coal Mining Institute of America, as reported in *Coal Age*, Nov. 3, p. 734.

This is a question on which I have expended much thought. My experience in handling such a situation, in the mine, compels me to say that I would not seal off any section or abandoned area. It is no theory of mine, but based on actual facts in my own experience.

GAS ACCUMULATES IN SEALED AREA

There comes to my mind, now an instance that I will mention briefly. The main headings, in our mine, had been driven approximately three miles. As is commonly the case, the coal had

been worked out from a considerable section lying between the shaft and the present live workings. In this case, the main intake and main return airways paralleled the main haulage road, which was also a return airway.

The arrangement was such that it was thought impracticable to force the return air through the old workings; and, as a result, these old works had become filled with blackdamp. To prevent these gases from contaminating the mine air, it was deemed best to seal off the old abandoned works and that had been done.

On a certain occasion, later, it became necessary to shut down the fan for extensive repairs. The result was that the gas flowed out from the old workings, through every crack and crevice, and the live workings were practically filled with these gases. So bad was the condition that, for a long time afterwards, the men were unable to work in their places.

After careful consideration, it was decided to change the entire plan and make the main haulage road the intake airway, so that it would be possible to course the air through the abandoned areas. This plan worked successfully and brought the desired relief, by driving out the gases that accumulated in the old workings and keepings them free and clear.

VENTILATE ALL WASTE AREAS WITH A SEPARATE AIR SPLIT

As a result of this experience, I would ventilate all abandoned workings with a separate split of air, wherever this is possible or practicable. Under no consideration, would I permit men to enter an abandoned section with a naked light. It is never safe for a man to enter such a place alone; but two men should accompany each other and carry safety lamps only.

In conclusion, allow me to say I would never permit a fireboss to make an examination of an abandoned area, or an extensive fall, without being accompanied by another competent man.

On more than one occasion, I have known of firebosses being trapped by slides of rock on falls, or overcome with gas when examining an abandoned place. On every such occasion, a second man would be able to rescue his fellow, or give the alarm.

To make abandoned areas safe, these should be periodically examined and kept free from accumulated gases. I have found it practically impossible to completely seal an abandoned section, or heading, and insure its remaining air-tight.

FRED W. SAKON.

Johnstown, Pa.

Stopping the Fan on Idle Days

Gases accumulate when fan is stopped—Effect of natural ventilation—Fan run at half-speed to reduce expense.

ATTENTION has been drawn by a Tennessee mine foreman, in the letter, *Coal Age*, Feb. 2, p. 210, to the question of shutting down a mine fan on idle days.

The writer has expressed my views exactly when he says, "A ventilating fan should be run continuously, day and night." Even allowing that the mine is not generating gas and permissible powder is used to reduce the danger of blasting in a dusty mine, I would not favor stopping the fan, except for the purpose of making necessary repairs and then only for as short a time as is required for that purpose.

On entering a mine Monday morning, after the fan has been stopped the previous day when the mine was idle, I have always been able to detect the odor common to abandoned areas where there is little or no ventilation. A considerable time must then elapse before the air in that mine is fit for men to breathe.

EFFECT OF NATURAL VENTILATION WHEN FAN IS IDLE

Not only is there danger of gases accumulating in void places and rendering the workings unsafe, but it may happen that the entire system of circulation is deranged, by reason of the natural ventilation being opposed to that produced by the fan when in operation. In such a case, dangerous gases may be driven out from the old workings and the danger greatly aggravated.

There is only one condition where I would consent to the stopping of the fan in a mine, during an idle time. If I knew that the natural ventilation in the mine conformed with the circulation produced by the fan and was sufficient to maintain at least half the usual

circulation and keep the places free from gas, I might then consent to stopping the fan during an idle time, particularly if the cost of keeping it running was high.

One mine in this region has a natural air volume equal to one-half of the forced ventilation. In that mine, the fan is shut down on all holidays, idle days and Sundays, which I consider safe practice in that instance.

SPEED OF FAN REDUCED TO SAVE EXPENSE

Before closing, allow me to suggest that where the cost of running the fan at the normal rate of speed is high the expense can be considerably lessened by reducing the speed of the fan when the mine is idle. It will often happen that operating the fan at half-speed during an idle time, will keep the mine free from accumulations of gas. This will generally be true in a mine where the air is kept flowing in the same direction, though at a less velocity.

If the fan is run by steam the engine will need to be throttled down to the required speed. But if the fan is electrically driven it will be necessary to either employ a second motor of less horsepower, or provide pulleys of different size that will afford the required reduction of speed in the fan.

Such an arrangement will have the advantage that, in case of accident to the larger motor, the smaller one can be brought into commission and the fan be operated at half-speed while the necessary repairs are made on the other motor.

FOREMAN.

Johnstown, Pa.

incompressible, and, when filling the space occupied by the coal, offers a like resistance to the coal. From this viewpoint, the claim of a "solid shot" seems reasonable.

SUPERINTENDENT.

Berwind, Colo.

Assuming that this coal has been mined to a depth of, say 6 feet, by a machine, and the undercut or mining later filled with water that drained into it, the coal going to the dip, a shot fired in the coal would not be a shot on the solid, provided the depth of the hole was less than the undercut and the drillhole inclined slightly downward.

It is true that water is incompressible and if the water was to be confined in the space previously occupied by the coal, its presence under the coal would have the same effect as if the cut has not been made. The shot would then be a shot on the solid.

This, however, is not the case. The pressure exerted by the water on the coal is nil, unless the free surface of the water stands at a higher level than the top of the cutting. In that case, the water would exert an upward pressure on the coal in the cut, corresponding to the head, which would be slight at the best.

Aside from the question of this being a solid shot, most men would prefer to drain the water from the undercut, before firing the shot, for the reason that the coal would make better loading when the place is comparatively dry. There is no fear, however, that the firing of such a shot, before draining the water from the undercut, would be a violation of the law against solid shooting.

Question for Firebosses

Roof-fall in a place releases gas, after fireboss has made his rounds—Miner is burned—Fireboss's marks effaced by the fall—How can the fireboss prove he examined the place, as required by law?

AS a fireboss I would like the privilege of asking one question that has perplexed me. It is as follows: In a mine worked with open lights, assume that the fireboss has made his customary morning examination and reported his section safe for work. A little later and before the men enter for work, a fall of roof occurs at the face of one of the places examined.

Now, let us assume that the mark required by law to be placed on the face of the coal, by the fireboss, is chipped and lost by reason of the fall. We will also assume that the mine is generating gas which comes from the roof. As a result of the fall a considerable body of gas is released, in the roof, and has accumulated at the face of this room when the miner enters his place for work. Naturally, the man assumes all is safe and starts to look for the mark made by the fireboss, to assure himself on that point. His open light ignites the gas and he is severely burned.

Under these conditions, I want to ask, How is the fireboss to prove that he

Inquiries Of General Interest

Blasting Machine-Mined Coal

Coal Mined with Machines in Dip Workings—Water Collects in the Place and Fills the Undercut—Is a Shot Fired in This Coal the Same as a Shot on the Solid?

WE HAVE been much interested in the discussion, in recent issues of *Coal Age*, regarding the shooting of coal off the solid. Naturally, this has raised some question as to what is a solid shot. From some statements that have been made by writers, it would appear that a shot that has been mined may yet be a solid shot, in effect.

In our mines the coal is mined with machines. One section of the mine is running to the dip and makes considerable water. The coal dips, say 8 per cent, at the faces of the rooms in this section.

In one instance, it so happened a place that had been cut with a machine was left standing for a time. Later, when the shotfirer entered the place to

fire the shot prepared by the miner he found the cut full of water. The question was asked, "Is not such a shot a shot on the solid since the water has taken the place of the coal in the undercut, which it has filled completely?"

The question has aroused some difference of opinion, here, and the judgment of *Coal Age* and its readers is asked. Some have claimed that the shotfirer who would fire such a shot would be guilty of shooting the coal on the solid, which is contrary to the state mining law, in Colorado. It was said he should refuse to fire such a shot, until the water had been drained from the undercut.

In support of the claim that this is a solid shot, it is stated that water is

visited and examined the place and left his mark on the face of the coal, as the law requires?
JOSEPH DRYNA.
Halvetia, Pa.

This is a good question for our firebosses to consider and we hope to receive practical answers. It represents a condition that may occur at any time and, possibly, place the fireboss in an

embarrassing position if he is accused of not having made his examination of the place that morning, because of the absence of any mark on the coal face as evidence of his presence in the place, which is required by law. We submit the question to firebosses, foremen and superintendents, asking for their opinions as to the fireboss being exonerated from all blame in such a case.

Examination Questions Answered

Alabama Firebosses' Examination, Birmingham, Jan. 25-28, 1922

(Selected Questions)

QUESTION—What care and attention should the safety lamp receive in the lamproom and how should the lamps be inspected before they are passed over to the workmen for use?

ANSWER—All lamps received from the men as they come out of the mine should be carefully inspected, cleaned, trimmed and filled by a competent man in charge of the lamproom. Before the lamps are again given to the workmen, at the beginning of a shift, each lamp should be lighted, carefully assembled and inspected thoroughly to detect any flaw or weakness in the lamp. A good plan is to give each man the same lamp, from day to day, and hold him responsible for its condition. To do this, each lamp must be numbered and the miner be given a check with a corresponding number when he returns the lamp. This check should be delivered to the lampman, in exchange for the lamp, at the beginning of each shift.

QUESTION—How would you proceed to remove a body of gas from a series of breasts pitching 30 deg., the gas having accumulated during a stoppage of the fan?

ANSWER—Assuming that the men are all out of the mine, the fireboss, with one or two competent and reliable assistants, should proceed to the intake end of the breasts in question. The work of removing the gas is started by erecting a brattice at the mouth of the first room, at the intake end, to deflect the air into that room. The brattice is extended gradually up the pitch, tests being made with a safety lamp to ascertain the progress of the work. All of the gas must be removed from the first breast, before conducting the air through the crosscut into the adjoining breast to remove gas from that place. It may be necessary to extend a line of brattice from the crosscut; up the pitch, to cause the current to sweep the face of this second breast. In like manner, the gas is driven from each successive breast, until the entire series is free from gas. In performing this work, it

may be necessary to increase the ventilating current in that section of the mine.

QUESTION—What dangers may arise from the improper care and handling of safety lamps by workmen?

ANSWER—A safety lamp is never safe if improperly handled or not given the care needed to keep it clean and the flame properly adjusted. Failure, in this regard, may cause the lamp to pass its flame through the gauze and ignite the gas-charged air outside of the lamp and cause an explosion. A safety lamp must be held erect and not tilted so that the flame impinges against the gauze. The lamp must not be exposed to a sudden rush of air or allowed to fall. In a strong air current, it must be shielded to protect it from the full force of the air. In carrying the lamp, it must never be swung.

QUESTION—If a serious gas explosion should occur in a mine where a large volume of air is being produced by a fan, what would be the possible cause of such an explosion?

ANSWER—It is possible for the air current to become charged with a dangerous percentage of gas, by reason of a sudden outflow of gas into the mine should a large feeder be struck in a working place, or opened by a fall of roof on an entry or in a room. In a mine containing a large abandoned area that is not properly ventilated, a heavy fall of roof may drive out a dangerous volume of gas into the live workings. This gas being ignited on the open lights of the miners would cause an explosion. Again, in a dry and dusty mine where dust has been allowed to accumulate at the working faces, a windy or blown-out shot may throw sufficient dust into the air to render it explosive when ignited by the flame of the shot.

QUESTION—How would you ascertain the quantity of air circulating through a mine?

ANSWER—Choose a point in the in-

take airway where the cross-section is uniform and the passageway straight. Then, having measured the sectional area of the entry at this point, take a reading of one or two minutes with the anemometer, holding the instrument at right angles to the current and at arm's length, moving it about in the passageway so as to obtain a fair average reading over the entire cross-section. The reading of the instrument divided by the number of minutes it is exposed to the current will give the velocity of the air, in feet per minute, approximately. Finally, multiply this velocity by the sectional area of the airway, in square feet, and the product will be the volume of air in circulation, in cubic feet per minute.

QUESTION—In an airway 8 ft. wide and 6 ft. high, the air has a velocity of 420 ft. per minute; what is the volume of air passing per minute?

ANSWER—The sectional area of this airway is $6 \times 8 = 48$ sq.ft. Assuming the given velocity is an average for the entire cross-section, the volume of air passing is 48×420 equals 20,160 cu.ft. per min.

QUESTION—Suppose, before making your regular examination of a mine, you discovered that a door had been accidentally left open, thus destroying the ventilation of the mine, say how you would proceed to make your examination?

ANSWER—In answering this question, we will assume that no one is in the mine other than the fireboss making the examination. In that case, the only danger that would arise from closing the door is the possible existence of a burning feeder or fire that would ignite the gas driven out of the workings when the door is closed. This is a matter which the fireboss must judge before closing the door. If there is any danger that fire exists in the workings, with which the gas will come in contact, the only thing to do, in that case, would be to close the door very gradually, so as to afford opportunity for the dilution of the gas by the air, below the explosive point. If men are working in the mine, they must be withdrawn before closing the door.

Before the fireboss can proceed with his examination, it will be necessary to establish a sufficient circulation through the mine to clear the places of gas. The examination must begin at the intake end and follow the air current proceeding only as fast as the places are found clear.

QUESTION—Why does firedamp explode in the safety lamp without producing an explosion of the gas with which the lamp is surrounded?

ANSWER—Light explosions may take place within the lamp chimney, caused by the entrance of fresh air into the combustion chamber when that is already filled with sharp gas, or a mixture above the explosive point. These explosions take the form of small balloons of gas and are not of sufficient force, generally, to blow the flame through the mesh of the gauze and ignite the gas-charged air surrounding the lamp.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

FIGURES received up to March 20 by the Department of Commerce bear out the conclusion reached in earlier months to the effect that business is gradually working its way back toward normal. This movement is not always evenly distributed among the different industries, but, having regard to those fundamental industries which constitute the backbone of American business, there is a very marked improvement over the conditions recorded a few months ago.

"The most fundamental change that has occurred in recent weeks," the department report states, "is the improvement in the prices of agricultural products. With the exception of tobacco, every agricultural product for which prices are given in the Survey of Current Business made a substantial increase in February over the preceding month. Compared with December, the improvement is more marked.

"In considering cotton production figures for February it must always be borne in mind that this month contains 10 per cent less working days than either January or March, thus the consumption of cotton by textile mills was only 473,073 bales in February, against 526,552 bales in January. This is a reduction of approximately 10 per cent, indicating that the average daily rate of consumption was the same in each month. Compared with a year ago there is an increase of 20 per cent and this occurred in spite of the present widespread labor troubles in the New England mills.

"The final ginning report of the Bureau of the Census gives the 1921 cotton crop as 7,976,665 running bales, compared with 13,270,970 bales in 1920 and 11,325,532 in 1919. Stocks of cotton in mills and warehouses showed a seasonal decline, with the total about 1,000,000 bales less than a year ago.

"Pig-iron production in February amounted to 1,630,000 tons, compared to 1,639,000 tons the month before and 1,937,000 tons in February last year. The February daily average output was 58,214 tons, compared to 53,063 tons in January, and was the highest daily average production since February a year ago.

"Steel-ingot production passed the 2,000,000-ton mark for the first time in twelve months. The February output was 2,069,000 tons in 28 days, against only 1,892,000 tons in the 31 days of January. The unfilled orders of the U. S. Steel Corporation showed a further decline of 101,000 tons, giving a total at the end of February of 4,141,000 tons.

"Building contracts awarded in the 27 Northeastern States during February were valued at \$177,365,000, an increase of \$11,000,000 over January, in spite of the shorter month. Residential building remained about the same for the two months but there was a noteworthy increase in business buildings, which totaled \$39,180,000 in February, compared with \$23,696,000 in January.

"All figures available show an improvement in unemployment conditions, with a marked increase in weekly earnings, indicating that mills are running more hours per week.

"All wholesale price-index numbers increased slightly in February. The Department of Labor index shows a rise of 10 points in farm products, with a smaller rise in the food group. Other groups, with the exception of 'miscellaneous,' either remained stationary or registered a slight decline. The index of all commodities rose three points. The retail food-price index remained stationary at 142, compared to 100 as the 1913 average.

Car Loadings Gain 25,873 in Week

Loading of revenue freight totaled 829,128 cars during the week ended on March 11, compared with 803,255 cars the previous week, or an increase of 25,873, according to the American Railway Association. This was the largest loading for any one week since Nov. 5 last, but was only 594 cars below that week. The total for the week exceeded by 128,688 cars the total for the corresponding week in 1921 and by 9,799 the total for the corresponding week in 1920. Coal loadings continued to increase, the total for the week being 204,568 cars, a gain of 7,929 compared with the week before and 68,649 more than were loaded during the corresponding week last year. It also excelled the corresponding week in 1920 by 19,760 cars.

Employment Situation Improves

Improvement in the employment situation, based on reports from widely separated states, is announced by Colonel Arthur Woods, chairman of the emergency committee of the President's conference on unemployment.

Auto Plants Speed Up

The Ford Motor Co. announced last week an increase of 20 per cent in its force, effective at once. Ex-service men and women will be given the preference in all cases wherever possible. Henry Ford says his tractor plant will open April 1, making 400 tractors a day and doubling present production. A large force will be added to the present tractor plant roll of 10,000 men.

An increase in working schedule of from three to fifty hours in various departments each week has been put into effect by the Autocar Co. at its main factory at Ardmore, Pa., because of a heavier run of orders. More than 2,000 employees will benefit. David Ludlum, president of the company, says business so far this year has increased 25 per cent.

Youngstown Steel Mills Busy

Schedules of steel mill operations for last week, as announced by mill offices in the Youngstown district, showed a decided increase, with operation at about 65 per cent of capacity, much the highest point reached in more than a year. Orders were received at Farrell, Pa., for re-opening eight open-hearth furnaces there of the Carnegie Steel Co., which had been idle for a year.

Pig iron production records were broken at the No. 2 furnace of the Carnegie Steel Co., New Castle, Pa., on March 8. In twenty-four hours the furnace produced 719 tons of iron. The previous record, held at the Youngstown furnace, was 711 tons.

Chicago Coal Men Not "Strong" for Hoover Trade Association Code

Opinion Is That It Would Virtually Amount to Government Control of Business—Time Wasted Would Nullify Value to Public

THERE is no enthusiasm among coal men of Chicago—the world's greatest coal market and headquarters of many large operators—for Secretary Herbert Hoover's "code of practice" for trade associations. The conversational verdict among these men against the "code" is that it would amount to governmental control of business and that it would slow down the dissemination of trade data to a point of worthlessness. Most men doubt whether open-price reports can be resumed in any helpful form. The "code" was informally set forth a month ago after Secretary Hoover and Attorney General Daugherty had jointly considered the matter. It was intended to help outline to American business the field of activities which trade associations could cover without violation of law. That outline had been made confusingly indistinct by the Supreme Court decision against the practices of the American Hardwood Manufacturers' Association in the American Column and Lumber case.

In the correspondence between Secretary Hoover and Attorney General Daugherty last month, published in full in *Coal Age*, the informal "code" presented by Mr. Hoover and approved tentatively by Mr. Daugherty made plain that illegal acts of trade associations are: Conspiracy to enhance prices, to curtail production or suppress competition, arbitrary establishment of production costs, the adoption of uniform trade marks or labels to be used by natural competitors who are members of the same association, which would tend to result in the same price being charged for all articles of the same class bearing identical labels, and the collection of credit information in order to create blacklists.

ELEVEN POINTS COVERED BY HOOVER CODE

The "eleven points" of Mr. Hoover's code, which cover permissible acts by associations are these: (1) Adoption of standard cost systems; (2) uniform trade phrases, (3) standard grades, forms of contracts, machinery and processes; (4) the collection of credit information not for blacklists, (5) the placing of insurance for members; (6) co-operative advertising; (7) promotion of employees' welfare; (8) management of legislative questions and litigation; (9) cultivation of closer relations with the government; (10) the collection of statistics of production, costs, prices, consumption and distribution, and dissemination of reports through the Department of Commerce to members and the public; (11) compilation (from members' price reports on closed transactions) of consolidated statements of average prices to be made public through the Department of Commerce.

"Just imagine us sending all that information to the Department of Commerce!" commented the president of a big operating company. "With the detail which seems to be required, can you think of anything which would constitute a more definite step toward government control? I can't. And even if the material were properly handled by the department in its routine work, imagine what a mine of information there would be down there in Washington always tempting some of those—those—well you know the types of men infesting Congress who constantly itch to attack 'big business' and corporations. Would they be snooping through that data daily looking for a chance to start something just for the sake of personal publicity? They would—not only daily but Sundays. This company will never send such reports to Washington willingly."

There are others in Chicago who regard the "code" in the same light, though men earnestly trying to think out a way for their associations to use it declare the fear of government control is baseless. They interpret the "code" to require the sending to Washington of insufficient detail to justify such a fear.

There is tribute to Secretary Hoover's standing with coal men in the fact that every man who expressed himself on

the question invariably prefaced his remarks by saying he had great confidence in Mr. Hoover and was sure that the Secretary had nothing but the best interests of American business at heart when he endeavored to work out the "code." Almost to a man they said they were willing to "go the whole distance" with Mr. Hoover if he developed a complete and definite program for trade associations.

"But," several of them suggest, "while this program of reporting to the Department of Commerce may work fine while Mr. Hoover is head of the department, what happens when somebody else takes Mr. Hoover's place? We know he is fully in sympathy with honest big business, but think of the trouble that could be caused by a man who wasn't! We have to remember that Mr. Hoover is an unusual man for the Cabinet, and won't be there forever."

There is so much uncertainty in the minds of men in the trade over the legitimacy of open-price reports under the Hoover "code" that nobody is willing to urge his association to resume them, if they have been dropped, or to continue them any longer in the case of those associations which are now issuing them. There is a real desire on the part of most companies for such reports. So the hope is frequently expressed that the government will make its position clearer on that point and that full reports will be permitted.

A price-cutting war after the coming miners' strike is thought by a good many men to be inevitable, especially if wage agreement with miners are made by districts in union fields. "In that case," pointed out an observer, "there will be a lot of fellows who won't care about turning in all these data on their costs of production and their sales. Some of them right now are getting ready for it. You won't hear them urging immediate resumption of open price reports."

But if reports of prices or production or stocks must go through Washington and be published from there to association members and the public, the opinion is they might as well be scrapped. They would be a week old at best and would give no indication of immediate market conditions. So it is hoped, in the interest of associations, that the government can modify its program somehow to meet this.

E. W. D.

Bids Range \$5.39-\$5.90 on 300,000 Tons of Coal for New Haven Railroad

BIDS opened on March 20 by the New York, New Haven & Hartford Railroad Co. for 300,000 tons of coal to be delivered alongside their piers at South Boston disclosed the following bidders:

	Coal	Price
W. A. Marshall & Co.	Fairmont	\$5.55
Smokeless Coal & Dock Co.	Fairmont	5.39
Consolidation Coal Co.	Fairmont	5.39
Iron Trade Products Co.	Kanawha	5.56
Iron Trade Products Co.	Fairmont	5.67
Keystone Coal & Coke Co.	Greensburg	5.85
Valley Camp Coal Co.		5.65
Eastern Coal & Export Corp.		5.55
Maryland Coal & Coke Co.	Kanawha	5.65
Karm Terminal Co.	Fairmont	5.47
New England Coal & Coke Co.	Fairmont	5.39
New England Coal & Coke Co.	Toms Creek	5.45
New England Coal & Coke Co.	Federal	5.49
New England Coal & Coke Co.	Kanawha	5.49
Moore & Co.	Fairmont-Freeport	5.95
Emmons Coal Mining Co.	Fairmont-Freeport	5.40
Dexter-Carpenter, Inc.	Kanawha	5.74
Moore & Co.	Parker Run	5.75
Gano Moore Coal Mining Co.	Fairmont-Freeport	5.90
Lake & Export Coal Co.	Kanawha	5.60
Spring Coal Co.	Long Branch	5.75
G. E. Warren Coal Corp.	Fairmont	5.50
C. H. Sprague & Son.	Island Creek	5.80

Mine Breaks All Records, Including Its Own

HOW insecure are production records! On March 9, 1922, the Bell & Zoller Mine No. 1, located at Zeigler, Ill., hoisted 7,214 tons, as noted in *Coal Age* of March 23, 1922, page 499. On March 22, or less than two weeks later, this same mine had broken its own record by raising 7,283 tons.

This production entailed the dumping of 1,944 mine cars, the hoisting of 878 skips and the loading of 162 railroad cars. Edward Prudent is manager of this operation.

Who can beat Mine No. 1 at Zeigler?

Coal Stocks Now Equal Those of Armistice Day*

Consumers Had 52,500,000 Tons on Hand March 1—Coal Leaving Mines Recently Expected to Swell Total to 63,000,000 Tons April 1—At Present Consumption Rate It Would Last 43 Days If Evenly Distributed

BY F. G. TRYON AND W. F. MCKENNEY

THERE are some aspects of the government report, "Commercial Stocks of Anthracite and Bituminous Coal as of March 1, 1922," prepared jointly by the Bureau of the Census and the Geological Survey, which deserve emphasis in view of the possibility of a suspension on April 1. The official count showed a total of 52,500,000 tons in the hands of consumers on March 1. At the rate coal has been leaving the mines recently it is clear that by April 1 this reserve will have increased to at least 63,000,000 tons; perhaps more. In other words, the United States will enter the stoppage, if one occurs, with a reserve of coal above ground equal in tons to that on the day of the Armistice. Considering the low rate at which coal is now being consumed, the reserve is even greater than that which had been accumulated on Armistice Day.

It may come as a surprise to many who are watching the production statistics to learn that stocks on March 1 were only 4,500,000 tons greater than those recorded two months before, at the beginning of the year. The quantity of coal produced in January and February was indeed some 10,000,000 tons in excess of consumption, but it had not all reached the consumer by March 1. There is a lag of perhaps two weeks between the production of coal and its delivery to the user, so that the quantity received by consumers for current use and for storage in the months of January and February was that produced between Dec. 15 and Feb. 15, or only 71,000,000 tons. By the time April 1 arrives the heavy volume of coal started on its way from the mines in recent weeks will have reached its destination, and we know that much of it will have gone into stock piles. In fact, if we could imagine a complete stoppage of production, something which has never happened in our bituminous industry, coal would continue to flow to the consumer for some days after the stoppage began.

In reckoning the length of time which a given reserve might last, it is of course impossible to count on withdrawing all of the coal from storage. A certain amount—not less than 20,000,000 tons, to judge from the experience of 1920—is necessary to insure continuous operation. It is like the raw material in process at a manufacturing plant, which has inventory value but cannot be withdrawn without stopping the works. Again, imposing figures of average days' supply may give a false sense of protection. The average must be used in order to make a mass of figures

comprehensible, but when we say that the reserve on March 1 was sufficient to last 43 days at the present rate of consumption, it does not mean that all consumers had 43 days' supply. Stocks are never evenly divided. No American city is without consumers who, through lack of necessary space or sheer neglect carry no reserve against an interruption.

ESTIMATED TOTAL COMMERCIAL STOCKS OF BITUMINOUS COAL IN THE UNITED STATES(a)

(In Net Tons)			
Oct. 1, 1916.....	27,000,000	June 1, 1920.....	20,000,000
Oct. 1, 1917.....	28,100,000	Jan. 1, 1921.....	(b) 45,800,000
July 15, 1918.....	39,700,000	April 1, 1921.....	(b) 39,500,000
Oct. 1, 1918.....	59,000,000	Aug. 1, 1921.....	(b) 41,100,000
Day of the Armistice.....	63,000,000	Nov. 1, 1921.....	(b) 48,500,000
Jan. 1, 1919.....	57,900,000	Jan. 1, 1922.....	(b) 48,000,000
April 1, 1919.....	40,400,000	March 1, 1922.....	(b) 52,500,000
March 1, 1920.....	24,000,000	April 1, 1922.....	At least 63,000,000

(a) Coal in transit and on Lake docks not included. The estimates here given are subject to a considerable margin of error. The figure for March 1, 1922, may lie anywhere between 50,000,000 and 56,000,000 tons. (b) Subject to revision.

Reserve in days' supply by principal classes of consumers as of March 1 compared with what was on hand Nov. 11, 1918, the day of the Armistice, is shown in Fig. 2. The average stocks for all consumers on March 1 were sufficient for 43 days, only 2 days less than the stocks on Armistice Day. Examination of the diagram shows that the position of the different classes of consumers was not the same. While the railroads had much more coal than at the end of the war and while byproduct coke and steel plants and the public utilities carried larger reserves in terms of days' supply, the general industrials and the retail dealers held much less, whether measured in tons or in the length of time the supply would last.

The rate of consumption on which these reserves are calculated is the average for the months of January and February. Were business to revive suddenly the days' supply would become less. At normal activity in the coal-using industries the average supply would be not 43 days, but 34 days.

DAYS' SUPPLY OF BITUMINOUS COAL IN HANDS OF VARIOUS CLASSES OF CONSUMERS IN THE UNITED STATES, JULY 15, 1918, TO MARCH 1, 1922

(Figures represent number of days supply would last at current rate of consumption at time of stock taking.)

	1918	1918	1919	1919	1920	1920	1921	1921	1921	1922	1922
	July 15	Nov. 11	Jan. 1	Apr. 1	Mar. 1	June 1	Jan. 1	Apr. 1	Aug. 1	Nov. 1	Jan. 1
Byproduct coke plants ..	28	35	32	23	15a	8a	28	29	31	38	42
Steel plants.....	27	45	42	35	9a	11a	42	38	46	46	48
Other industrials.....	48	71	65	47	27	24	64	47	56	67	51
Artificial gas plants.....	72	85	81	58	31	22	55	66	79	87	89
Electric utilities.....	39	49	49	48	21	22	44	48	44	54	51
Coal dealers, bituminous..	15	37	39	25	13	10	30	26	42	46	33
Railroads.....	25	31	32	(b)	11a	10a	23a	24a	(b)	31a	35a
Total bituminous.....	31	45	42	31	18	15	39a	36a	39a	43a	41a

(a) Estimated from incomplete data; subject to important revision. (b) No data.

While the change from Jan. 1 to March 1 was generally upward, there were some districts of the country which departed sharply from the average. Every state in New England, every state in the Lake dock territory, and five of the far Western States allowed their stocks to decline. Consumers in these sections seemed to feel that there was little occasion for increasing their reserves. In the Southeastern states March 1 found stocks at almost the same level as that reported two months before, but in the Middle Atlantic States, the Central Mississippi Valley and the Southwestern Interstate group, stocks uniformly increased and for the most part increased sharply. For example, while in New England industrials had 18 per cent less coal on March 1 than on Jan. 1, the same class of Illinois consumers had increased their stocks by 37 per cent. In Indiana the increase was 38 per cent; in Ohio, 36 per cent; in Iowa, 36 per

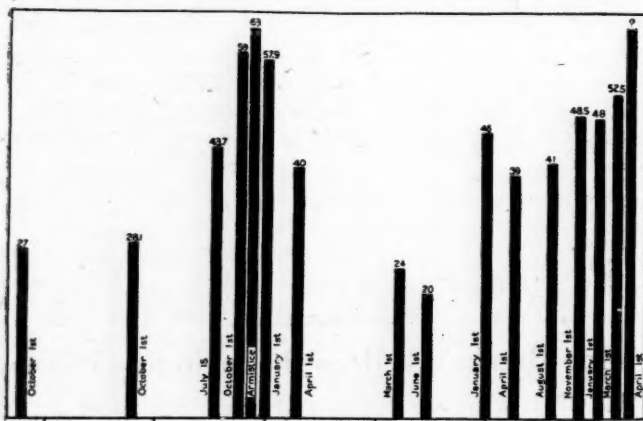


FIG. 1. TOTAL COMMERCIAL STOCKS OF BITUMINOUS COAL, OCT. 1, 1916, TO MARCH 1, 1922, WITH AN ESTIMATE FOR APRIL 1

Figures represent million net tons and include coal in hands of railroads, industrial consumers, public utilities and retailers. Coal for steamship fuel, on Lake docks and in transit is not included. Figures for 1921 and 1922 are subject to revision.

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cent; in Kansas, 40 per cent, and so forth, with singular unanimity in those states dependent upon the Central Competitive Field—Pennsylvania and the Southwestern Interstate region.

Much the same difference in policy in the different consuming sections is revealed by the stocks of electric utilities. In New England stocks declined; in the Central West and Middle Atlantic States they increased. The Lake dock territory, like New England, reported less than on Jan. 1.

GEOGRAPHICAL DISTRIBUTION OF STOCKS ON MARCH 1

The best guide to the condition of stocks in different consuming sections is furnished by the class of general industrial consumers other than steel and byproduct coke plants. From the map in Fig. 3 it will be seen that only four states showed average stocks in excess of 90 days. In New England, southern Michigan, Minnesota, New York and New Jersey, some of the Rocky Mountain States, Georgia and Florida the reserves ranged from 60 to 90 days. In the Mississippi Valley the average varied from 30 to 60 days. It appears therefore that in spite of the decline in New England and the Lake dock territory above noted, consumers in those districts remote from the mines were still well protected.

STOCKS OF BITUMINOUS COAL BY TYPES OF CONSUMERS

Railroad-Fuel Stocks—The American Railway Association has courteously supplied data for its members on the quantity of coal held by the railroads on March 1 for railroad fuel and all other railroad use. The roads already

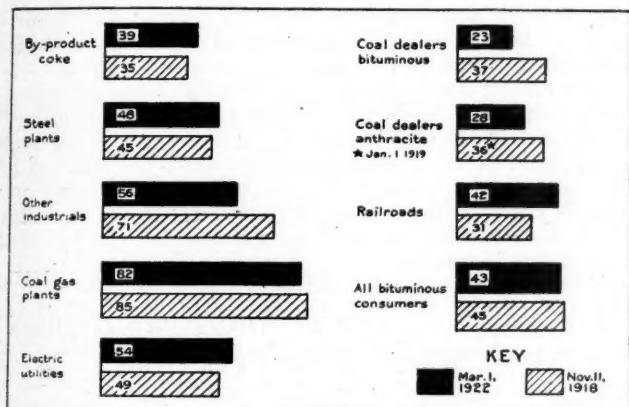


FIG. 2. DAYS' SUPPLY HELD BY DIFFERENT CLASSES OF CONSUMERS ON MARCH 1, 1922, AND ON ARMISTICE DAY

At the rate coal was being burned in January and February, the stocks on March 1, 1922, were sufficient to last 43 days. This was almost as long as the stocks on the Day of the Armistice would have lasted at the higher rate of consumption then prevailing. Present stocks of byproduct and steel plants, the railroads and public utilities compare favorably with those on Armistice Day. Coal dealers and general industrials, however, have less.

heard from have a total of 14,850,000 tons, and it is expected that complete reports will show more than 16,000,000 tons. As the largest stocks of record in the past are 13,640,000 tons on Jan. 1, 1919, it will be seen that the railroads have accumulated what is for them an enormous reserve of coal. It is sufficient to last on the average 42 days at the present rate of consumption. The stocks on the day of the Armistice were sufficient for only 31 days, part of the difference being the greater requirements of the roads at that time.

Coal-Gas Plants—The coal-gas plants of New England, the Middle Atlantic States and Michigan are heavily supplied with coal. In 7 states where coal gas is largely used the reserves exceed 90 days; in fact, the average for the country on March 1 was 82 days. In some sections, however, the plants are carrying much smaller stocks, sufficient for less than 30 days.

Electric Utilities—The electric public utilities are heavily stocked. The average supply on Jan. 1 was 51 days, and by March 1 this had been increased to 54 days.

Retail Coal Dealers—Retail dealers as a class were the only large group of consumers to report smaller stocks on March 1 than at the beginning of the year. At the rate



FIG. 3. DAYS' SUPPLY OF SOFT COAL ON HAND AT INDUSTRIAL PLANTS ON MARCH 1, 1922

At the rate of consumption prevailing in January and February, stocks at industrial plants other than steel and byproduct coke would last on the average 56 days. How the supply varied from state to state is shown in the diagram. The darker the shading, the heavier are the stocks. If business should revive and consumption increase, the stocks expressed in days' supply would be smaller. Based on reports from 2,379 plants.

their customers were calling for soft coal in the two months of January and February, coal dealers had stocks sufficient to last 23 days. In terms of tons on hand, however, their reserves were slightly greater than those of April 1, a year ago, and 72 per cent greater than on March 1, 1920, at which time coal was scarce.

Industrial Consumers—The stocks held by industrials varied from 9 days in North Dakota to over 100 days in Oklahoma, New Mexico, Arizona and the northern peninsula of Michigan. New England as a whole carried a reserve of 71 days, and for the United States the average was 56 days.

Byproduct and Steel Plants—Practically complete reports from the byproduct coke and steel plants showed the following reserves on March 1, at the rate of consumption prevailing during January and February:

BYPRODUCT PLANTS		STEEL WORKS	
Low volatile	55 days	Steam coal	42 days
High volatile	34 days	Gas coal	56 days
Average	39 days	Average	45 days

BITUMINOUS COAL IN TRANSIT

By far the largest item of the reserves in transit is the quantity of coal on the Upper Lake docks. Normally the dock companies report a maximum at the close of navigation, and expect to carry over a nominal tonnage to the following season. So light has been the movement off the

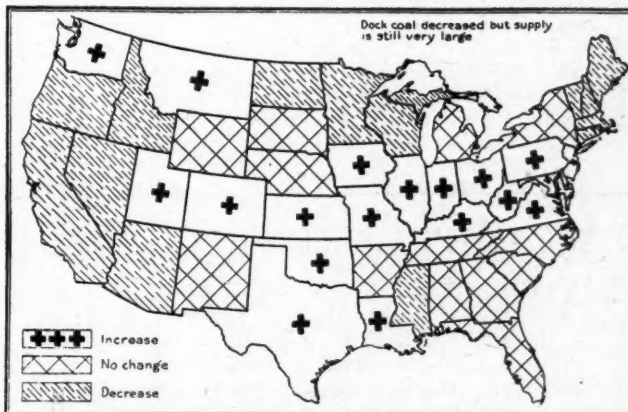


FIG. 4. CHANGES IN STOCKS FROM JAN. 1 TO MARCH 1 AT INDUSTRIAL PLANTS OTHER THAN STEEL AND BYPRODUCT

In the months of January and February industrial consumers in New England, the Lake dock territory and five of the Far Western States allowed their stocks to decline. A different policy was pursued by industrials in the Middle Atlantic States, the Central Mississippi Valley and the Southwest Interstate Region, where without exception stocks increased sharply. Between these areas of increase and decrease were states where stocks showed no change. This was the general condition in the Southeast.

docks during the present winter, that on March 1 a total of 5,160,000 tons remained on hand, and it appears unlikely that the reserve will be less than 4,250,000 tons on April 1. For the following statistics the Geological Survey is indebted to the Northwestern Coal Dock Operators' Association:

August 1, 1921.....	8,188,639 net tons
November 1, 1921.....	8,824,297 net tons
January 1, 1922.....	7,150,654 net tons
March 1, 1922.....	5,160,452 net tons

These figures are exclusive of coal on the private docks of industrial consumers, such as the copper- and iron-mining companies of northern Michigan and Minnesota. The stocks of these latter companies, however, are included in the commercial storage.

ESTIMATE OF STOCKS OF ANTHRACITE

Concerning the amount of anthracite in cellars of householders, no statistics are to be had. It is a common belief among the trade that consumers are carrying less anthracite than is customary at this season of the year. The stocks in the yards of retail dealers are still considerable, though showing a sharp decrease since Jan. 1. No complete count has been made by the government, but a selected list of 642 dealers from whom reports have long been received carried 20 per cent more coal than on Jan. 1, 1919, and about the same amount as on March 1 a year ago. At the rate coal was being called for by householders in January and February, the stocks reported were sufficient to last 28 days. With the approach of milder weather the same tonnage would, of course, suffice for a longer time.

ANTHRACITE IN YARDS OF SELECTED LIST OF RETAILERS (c)

Date	Net Tons	Days' Supply (b)	Date	Net Tons	Days' Supply (b)
1919—Jan. 1	968,746	36	1921—Aug. 1	1,573,427	50
Apr. 1	837,220	31	Nov. 1	1,460,524	47
1920—Mar. 1	787,100	21	Dec. 1	1,601,409	50
June 1	589,318	15	1922—Jan. 1	1,393,551	44
1921—Jan. 1	740,034	24	Mar. 1	1,169,180	28
Apr. 1	1,213,252	36			

(a) Based on statements from 642 identical dealers who reported on each date.

(b) Calculated at current rate of delivery to consumers, which varies.

Anthracite in Transit—The Upper Lake docks, according to the Northern Coal Dock Operators' Association, held 821,448 net tons of domestic sizes on March 1. At the close of navigation stocks had been approximately 1,300,000 tons. The quantity of anthracite on hand at tidewater piers on March 1 was not unusual.

Anthracite in Producers' Storage—The producers have not authorized the publication of their stocks as of Jan. 1 or March 1. On Nov. 1 they reported a total of 4,500,000 gross tons in storage at Eastern points, of which 1,800,000 tons was in domestic sizes and 2,700,000 in steam sizes. Since Nov. 1 production has been fairly well maintained, considering the weather and the industrial depression.

Stocks of Coke at Byproduct Coke Plants—A factor of importance in the present reserves of domestic fuel is the accumulation of large stocks of byproduct coke at those plants which have contracts for the supply of gas to municipalities. Reports from 19 such byproduct plants show a total of 980,804 tons on March 1, and there can be no doubt that including what may be on hand at other plants not reporting at this writing (March 25), the total is in excess of a million tons.

Daugherty's Attitude on Eve of Strike

ATORNEY GENERAL DAUGHERTY had issued no formal statement up to Saturday, March 25, on the strike situation. Everything that has been said has been in verbal statements to the correspondents. He said he had given assurances that there would be no action taken under the Sherman Law against the operators and miners if they met to discuss the wage scale and working conditions, but added that he would not hesitate to employ the injunction weapon, if necessary. The miners, he said, have a right to strike but have no right to interfere with others taking their places; hence he would brook no resort to violence.

Bill Proposes Coal Commission to Prevent Strike by Publicity

Representative Bland's Measure, Providing for Congressional Hearing, Referred to Labor Committee

—Senator Borah Starts Inquiry

SENATOR BORAH, new chairman of the Senate Committee on Labor, stated on Monday, March 27, that he is making inquiries as to why the operators refused to meet the coal miners in a national conference. He intimated that if he should fail to obtain a satisfactory explanation he would institute a more formal investigation.

A bill creating a coal commission to serve for such time as the House Committee on Labor, to which it was referred, may determine, but designed to prevent a coal strike at this time by publicity through a Congressional hearing on the subject, was introduced in the House March 23 by Representative Bland, of Indiana. Mr. Bland had previously made a speech in the House urging government action to force a conference between the operators and miners. His bill leaves for the determination of the Labor Committee the time at which this commission would report, as also the compensation of its members and the time it would serve.

At the request of Representative Bland the House Committee on Labor will begin hearings Thursday on his bill, which provides that a commission investigate conditions in the industry, particularly in regard to wages. The Department of Labor and representatives of the national organizations of operators and miners are invited to appear.

The title of the measure is "to establish a commission to inquire into and report on conditions in the coal industry." It authorizes the appointment of three members for such commission by the President, without their confirmation by the Senate, as is usually the case with Congressional commissions, and without any distinction as to whether they shall represent capital, labor or the public, which has been the custom heretofore.

Finds Living Costs in Anthracite Regions Down 20.7-23.2 Per Cent from Peak

THE cost of living for families in the anthracite regions, according to a survey just completed by the National Industrial Conference Board, decreased from 20.7 per cent to 23.2 per cent from the peak in July, 1920, to February, 1922.

This investigation shows that the minimum cost of maintaining a fair American standard of living among anthracite mine workers' families, according to conditions actually prevailing, in February, 1922, varied from \$897.34 a year for a family consisting of a man, woman and one child living in company-owned houses to \$1,475.45 a year for a similar family with four children living in commercially-owned houses. Single men paying for board and lodging, on the other hand, because the cost of their necessities is normally considerably greater than would be their proportional share of the cost in a family group, required \$703.96 a year to live at a fair minimum American standard in the anthracite region in February, 1922.

There were slight variations in these figures for the different sections of the anthracite coal fields but the figures for the area as a whole are sufficiently representative of conditions generally prevailing. In addition to the comparatively large centers such as Scranton, Wilkes-Barre, Hazleton, Pottsville, Shamokin and Shenandoah, 28 smaller communities were visited.

THE AUTHORITY OF THE FEDERAL TRADE COMMISSION to require cost data of the coal and other basic industries is soon to be tested in the Court of Appeals of the District of Columbia. The Federal Trade Commission has appealed the case to this court, the District of Columbia Supreme Court having sustained the complaint that the commission lacks this power.

Operators' Insistence on Wage Cut and Union Reforms Believed to Presage Long Struggle

BY PAUL WOOTON

Washington Correspondent of Coal Age

THAT the coal operators made a tactical blunder, likely to have far-reaching consequences, when they failed to meet the United Mine Workers' representatives in conference, is the general belief in legislative and departmental circles in Washington. It is believed that this action on the part of the operators has cost the coal-producing industry heavily when expressed in terms of public opinion. To undertake to settle labor questions on a state basis is regarded in those circles as a step backward. The next step, it is feared, will be to attempt to return to district agreements, from which it would be only a short additional step to the negotiation of wage agreements on an individual basis.

Those who have been in intimate touch with coal operators in union territory during recent weeks declare that there is no desire to get rid of the miners' union. The advantages of collective bargaining are in such contrast with the confusion of other days that most of these operators would not cripple the union if they could. They are all determined that certain fundamental reforms in the union must be brought about and they are more than willing to enter into a finish fight at this time in an effort to effect these reforms.

There probably are a score of changes the operators would like to put into effect. It is only necessary to mention two of them—the check-off and machine differentials—to indicate that they cannot be made without a hard fight. The apparent determination of the operators to insist not only on a substantial reduction in wages but on these even more fundamental matters influences many to believe that the strike will be long drawn out. There are

differences of opinion on that point. Some of the coal specialists in Washington believe the strike will be short-lived. That conclusion is based on the belief that the miners after a short period will be willing to make wage concessions. By that time the operators will have seen enough non-union coal moving into their markets to persuade them to concede the other points involved. In that connection, however, it is pointed out that the strike of 1910 in mid-continental territory lasted five and one-half months under comparable conditions.

Some of those predicting a short strike apparently are being influenced by the lack of money in the mine workers' treasury. Others point out, however, that the Illinois miners are in a good position financially, as are the anthracite workers. It is certain that financial aid will be extended by other unions, so that this need not limit the strike, especially in view of the fact that the miners would be a little better off if the strike were settled. With coal stocks at their present level and with the ability of the non-union mines to keep their wages a notch below those of the union fields it is apparent to all that there will not be much work during the summer, even if there should be an early settlement of the strike.

There is a disinclination this week on the part of those connected with coal activities in Washington to venture predictions. Predictions made on the eve of an event are particularly glaring if they are wrong. This applies particularly to the anthracite situation. There is a general tendency to admit that there is a considerable chance for some gentlemen's agreement being made which would insure settlement before the strike had lasted long.

Average Annual Earnings in 200 Bituminous Mines Oct. 31, 1921, Was \$1,357.40

A REPORT of the Bureau of Labor Statistics of the Department of Labor presented to the Senate by Senator Willis, of Ohio, states that the average earnings of bituminous coal miners in Alabama, Colorado, Illinois, Indiana, Kentucky, Ohio, Pennsylvania, Utah, West Virginia, Washington and Wyoming during the past year has been \$1,357.40. The report covers an investigation of 200 mines for the year ending Oct. 31 last. It shows that the average number of days which these mines operated was 195; that the highest number of days operated by any mine in the group was 310 and the lowest 71.

The report gives numerous statistical tables on hours and earnings in bituminous mines for the fall and winter of 1921, covering 52,784 employees in the states named. In a summary accompanying the statistics it is stated that few mines even approached full time work, many mines being shut down, and the men working as low as one and two days in one period. Among the miners reported on were 22,012 loaders, 8,429 pick or hand miners and 2,256 machine miners.

Discussing statistics given on hours of operation of bituminous mines, the bureau says it believes its report fairly represents conditions as to the irregularity of work in bituminous mines of the country. The statistics on working time in bituminous mines is from October, 1921, to February, 1922, and covers in addition to the states named above the following: Arkansas, Iowa, Kansas, Kentucky, Maryland, Missouri, Montana, North Dakota, Oklahoma and Texas.

The report gives tables covering the following: Tonnage rates for machine mining, loading and pick mining; days and hours of operation in half month, tons produced, days of operation and days closed in year, and average earnings per hour by states and mines; date of payroll of beginning

of wage peak, date and amount of reduction of wages, overtime rate, bonus, deductions from earnings and hours per day, by states and mines; number of mines, number of leaders, pick miners and machine miners, combined; average number of starts, days; average number days of operation during year and estimated earnings for year by states; number of mines and employees, average number of starts, days; and average hours and earnings, by occupation and state, tonnage workers and time workers.

NUMEROUS APPEALS TO THE PRESIDENT to take action to prevent a strike and, failing in that, to have the government take over the operation of the mines, have been made. The People's Reconstruction League asked that the government operate the mines and that authority therefor be obtained through enactment of the Kenyon-Newton bills regulating the coal industry. These bills authorize government control on certification of an emergency by the Federal Trade Commission. A statement of the league issued by its secretary, B. C. Marsh, asked that the administration take action "to compel the profiteering coal operators to pay fair wages to all operatives." The Federation of Trades of Atlanta, in a message taken to the White House by Representative Upshaw, of Georgia, asked the President to compel the operators and miners to confer, and, failing a wage agreement, for the government to take over and operate the mines.

IT SEEMS NECESSARY to have a coal strike voted by the union and officially ordered by its officers before there's any chance of considering a settlement.—*New York Sun*.

HERBERT HOOVER WARNS of an impending coal strike; but, in comparison with all our other troubles, that is only a miner matter.—*Nashville Southern Lumberman*.

THE MINERS APPARENTLY THINK that their goal is within striking distance.—*Norfolk Virginian-Pilot*.

All Coal Fields North of Rio Grande to Strike April 1

WITHOUT waiting for the outcome of the referendum vote and while still conferring with the anthracite operators, even without waiting until the expiration of the present agreement, John L. Lewis, president of the United Mine Workers of America, declared on March 21 a strike beginning April 1 of all mine workers in the United States and Canada, Nova Scotia alone being excepted.

In all probability all the union and non-union workers in union districts in Nova Scotia and elsewhere will strike on April 1, and Mr. Lewis hopes that even in non-union districts strikes will occur. Some areas, however, like those in Tennessee, parts of southeastern Kentucky and Colorado, which by some are rated as union, have accepted reductions. They may continue at work for this reason. The vote on the strike, though not all in, is said by Secretary-Treasurer Green to run 19 to 1 in favor of a suspension.

The combined funds of the International Union, its districts and locals with which to carry on the strike will total between \$5,000,000 and \$6,000,000, but it is most irregularly distributed. Illinois has about \$2,000,000 of this money. Whatever it is, it is little enough for a strike in which 500,000 men in the United States alone will be idle and which will involve 800,000 men in the United States if the union strikers are joined by the non-union. The union cannot pay strike benefits; it can only establish commissaries and give other insignificant relief. The union mine workers, though working more steadily of late, are not in financial condition to support themselves nor are the union districts, whether farming or industrial, able to give much support, owing to the hardness of the times.

The policy committee of the United Mine Workers, 116 strong, met in Cleveland on Friday, March 24. At this meeting the strike call of President Lewis, issued on March 21, was approved. The most important result of the meeting was the curbing of Frank Farrington, who had threatened to make a separate settlement in Illinois.

TO PROSELYTE IN NON-UNION FIELDS

Mr. Lewis believes that the infiltration of union men into the non-union regions of southern West Virginia, Virginia and southeastern Kentucky will make those regions ready to respond to a call from the union, and the policy committee decided to make such a call to the men in those regions in the hope that they would cast their lot with the union men. It appears from later advices that the United Mine Workers is planning to flood the non-union fields with agitators and to distribute leaflets in the mining valleys by airplane.

Lawrence Dwyer, of Beckley, who is a member of the International board, read a resolution of the joint protective board of the Norfolk & Western Ry. employees, including members of all four brotherhoods. This indorsed a joint strike action of mine and railroad workers. It is certain that even without a strike the railroad workers could do much to hinder the flow of coal from the unorganized regions of West Virginia.

Meantime, Warren S. Stone, president of the Brotherhood of Locomotive Engineers, and W. L. Lee, chief of the Brotherhood of Railroad Trainmen, met Mr. Lewis in Cleveland, the first at least at his own initiative, and so created the idea that the railroad men were seeking a way to assist in the strike.

Apparently the Kansas Industrial Relations Court expects to keep the Kansas mines working. On March 24 it summoned the operators and mine workers to a meeting at Topeka to be held March 31, at which they will be required to give testimony on mining conditions in Kansas on which an order for the running of the mines may be based.

It has already been said that Nova Scotia has been excepted in the call for a strike. Probably this exception was made because Nova Scotia operators have already met with the Mine Workers leaders, have submitted a proposal, have put the dispute up to arbitration, and because con-

sequently Nova Scotia has no justification for striking. However, the mine workers of that district probably will strike, as they have rejected the award of the arbitrators and have repudiated the more favorable agreement that the operators offered in its stead and which the leaders of the Mine Workers tentatively accepted. They are alleged to be following the advice of Secretary-Treasurer MacLachlan to "soldier" on the jobs which they are filling, and some have been shifted to less desirable places in consequence. The Nova Scotia miners, however, are still working at wages in accord with the Gillen arbitration award.

In British Columbia the operators have offered a 46-per cent reduction and the mine workers will strike for their present wages on April 1. They may try to get a board of inquiry under the Lemieux or Industrial Disputes Investigation Act. But to this the operators do not take kindly, for the mine workers demand the old scale till a new one is provided by the board, and they reserve the right to accept or reject the ruling of that board when made. In view of what has happened in Nova Scotia, where arbitration and tentative agreements of union officials have been disregarded by the mine workers and where sabotage is being tried as a means of bringing an unfair pressure on the employers, the operators of the Western Canadian Coal Operators' Association are not disposed to allow the reduction of wages to be delayed till the board decides, for fear that when decision is made it will be regarded by the mine workers as being in no sense binding on them and their leaders.

Following reports from Washington that government officials have asked the Shipping Board to consider a scheme to carry coal as ballast on ships plying between the United States and coal-producing countries, it was announced that the question of whether members of the International Seamen's Union would assist in the transportation of British coal to the United States during the strike had been referred to the officials of the international union in Washington.

Anthracite Men to Let Maintenance Forces Work; No Settlement in Sight

THE first three conferences of the joint subcommittee of anthracite operators and miners selected to agree upon a new wage agreement, held at the Union League Club, New York City, on March 21, 22 and 23, were taken up with a general discussion of the demands presented by the miners. With the "decks cleared" John L. Lewis, International president of the Miners' organization, says the miners will now be prepared to offer statistics and analysis to back up their demands. It is not expected that the operators will present their counter demands as to how much wages ought to be reduced until after the completion of the miners' arguments.

The sessions of the joint subcommittee were adjourned on March 23 until March 27 to permit President Lewis and other members of the organization to attend the meeting of the general policies committee of the United Mine Workers of America at Cleveland.

What probably was the most important development of the situation thus far, from the viewpoint of the miners, was the conference in New York City on the night of March 22 between President Lewis and a delegation representing the American Federation of Labor, which journeyed from Washington especially to confer with President Lewis before he departed for the Cleveland meeting.

At the meeting of the joint subcommittee held on March 23 it was agreed by the operators and miners that the men left to protect the mines during the suspension shall be paid at the present wage schedules, with the understanding that the terms of the new wage agreement shall be retroactive to April 1. It is estimated that about 3,000 men will be needed.

Farrington Arranges Meeting with Coal Producers to Discuss Wages

FRANK FARRINGTON, Illinois district president of the United Mine Workers, on Monday, March 27, arranged to meet Illinois operators on wage question in Chicago Wednesday, March 29. Both Farrington and the presidents of all three operators' associations said they believed nothing could be done except arrange a real wage session to be held after the strike takes effect. Farrington added he was confident a wage agreement could soon be made. Coal men think it will take 30 to 60 days.

There is a tendency in Chicago to hoot at the union headquarters idea of inducing non-union miners to strike in sympathy. The idea there prevails that not only will every non-union miner stay on the job but enough defections will occur in union ranks around the edges of the non-union fields so that a good many union mines will be able to start up early in the summer.

In Illinois it appears that plenty of men are ready to go to work in union mines if the operators need them. Men of all degrees, with mine experience and without it, are filing daily into the office of the Illinois Coal Operators' Association to list themselves for any jobs that may develop. They get no encouragement, the association telling them that there is almost no chance of their being called. Their names and addresses are taken, however. Members of the association met in Chicago Wednesday of last week behind closed doors to make arrangements, it was announced afterward, for protection and care of mine properties during the strike.

Indiana Operators Want Revisable Scale; Union Refuses to Meet Operators

THE scale committee of the Indiana Bituminous Coal Operators' Association met in Terre Haute March 21 for the purpose of formulating a wage scale and working agreement with the soft-coal miners of Indiana to take the place of the scale expiring March 31. It is understood the operators' scale when finished proposed that a reduction of from 30 to 40 per cent be made in wages to meet the reductions proposed by Eastern operators. Abolition of the check-off system and retention of the present time schedule also will be included in the scale. The operators will seek to include in the contract a clause making the wage scale provide for changes during the life of the contract whenever the operators in other states adopt a lower wage scale.

Mr. Penna, for the Indiana Bituminous Coal Operators' Association, despite a refusal to his first letter of March 18, made an offer to meet and confer with the Mine Workers officials in the Indiana bituminous district. In this second letter Mr. Penna referred to the violation of the contract by the miners in 1920 and the burden imposed by the long conferences by which contracts have hitherto been made. He reminded them that the differences which have prompted the call of the miners to strike April 1 do not involve a question of wages or recognition of the union by the operators, but merely insistence that the contract be made by such a portion of the coal-producing territory as the union believed would concede the best contract.

Miners Refuse to Confer with Operators

ALL efforts made by the bituminous coal operators in the fields comprising the Central Competitive region and in the outlying districts to confer with the United Mine Workers have failed. Among others the southern Ohio operators, who are in the aforementioned region, through W. D. Kinney, secretary of Southern Ohio Coal Exchange, offered to meet the Mine Workers' representatives of District No. 6, comprising Ohio, but were told on March 23 that no meeting could be held until after a basic wage agreement had been made for the whole region.

The Pittsburgh Coal Producers' Association, the biggest operators' organization in District No. 5, invited the repre-

sentatives of that district to meet with them at a certain place and time on March 20. When the hour came the operators' representatives were present but the representatives of the Mine Workers did not put in an appearance.

In central Pennsylvania, which is outside the Central Competitive region, B. M. Clark of Indiana, Pa., president of the Association of Bituminous Operators of Central Pennsylvania, the larger of two operators' organizations in that area of the coal fields, requested John Brophy, president of District No. 2, to meet the operators for the purpose of making a wage scale, but has had no reply. He is resting on the declaration of the Indianapolis convention which prescribed that the outlying districts must wait till the Central Competitive region had made its scale before making theirs.

It is recalled in the *United Mine Workers Journal* that on March 9 the mine workers and operators of the Southwestern coal fields met at Kansas City, but parted without results because the mine workers refused to discuss a contract prior to the writing of a basic wage scale in the Central Competitive region.

Reference to the shifting policy of Mr. Keeney, president of the Fairmont-Kanawha mine workers, at Baltimore and elsewhere, is contained in the chronology of last week and in a special story in this week's issue. In another place will be found reference to the difficulties the Indiana and the Illinois operators are finding in obtaining a conference. In Nova Scotia the operators find that the mine workers will not accept the award of arbitrators or even a more favorable agreement made by their leaders in conference with the operators. In the anthracite region they are striking in the midst of a conference of their own seeking.

Anthracite Tax Will Total \$3,150,799.85 For Second Half of 1921

ACCORDING to reports in the hands of Auditor General Lewis, the State of Pennsylvania is now entitled to \$3,150,799.85 as its 1½ per cent tonnage tax on anthracite produced during the second half of 1921, provided the constitutionality of that act is upheld by the Supreme Court.

During the period July 1-Dec. 31, 1921, anthracite production, including dredge coal, as reported to the state, was 31,590,171.83 tons, having a computed value of \$210,053,310.43. The reports are not complete, the Auditor General reporting that there are a few delinquents who are being rounded up.

The average sales prices during the period of the reports, as filed by eighteen representative operators, and on which assessments have been computed, were: Broken, \$7.5355; egg, \$7.551; stove, \$7.822; chestnut, \$7.7623; pea, \$5.7414; buckwheat, \$3.5413; rice, \$2.1058; barley, \$1.362.

Kanawha-Fairmont Men Meet but Refuse to Make Any Contract with Operators

FRESH from the biennial meeting of District No. 17 at Charleston, W. Va., held March 18, the scale committee of the United Mine Workers met the scale committee of the operators at Baltimore, March 25, and refused to make a contract, urging that it was without authority to take such action till the Central Competitive region had decided on its scale. Consequently the meeting came to an end without coming to an agreement.

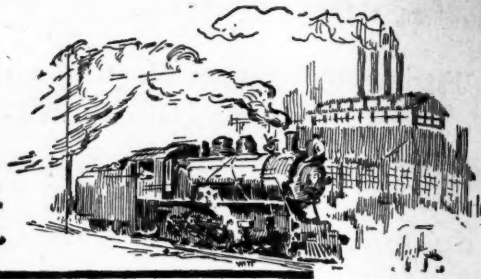
Production Record Again Beaten

AS this issue went to press word was received that on Saturday, March 25, 1922, the Orient mine of the Chicago, Wilmington & Franklin Coal Co., at Orient, Ill., hoisted 8,210 tons. This exceeds the best record of the Bell & Zoller No. 1 mine, as noted in the last paragraph on page 541, by 927 tons. In making the record at the Orient mine the actual hoisting time was 12 minutes less than 8 hours, and a total of 1,640 dumps was made. The height of the hoist is 590 ft.

Now, who can beat this record of Orient mine?



Production and the Market



Weekly Review

AS THE curtain goes up for the opening scene in the strike drama, the industrial coal buyer, having safeguarded his needs to the tune of about six weeks' supply, settles himself in the audience and assumes the role of spectator. The eve of the coal strike has been marked by a further softening of the market. Commercial consumers of coal have turned a deaf ear to the quotations made, while railroads and public utilities, which have been the most active takers, are going out of the market as their stocking programs are completed.

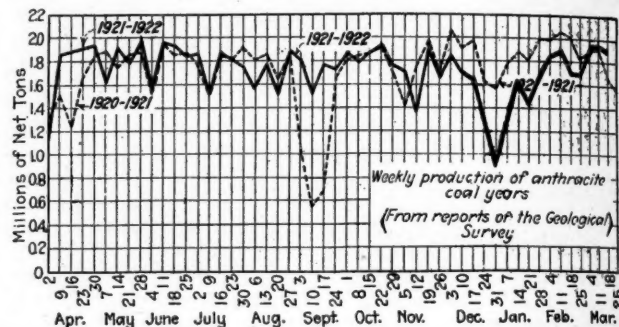
Heavy production in the face of this apathetic demand made lower prices inevitable. Coal Age Index of spot bituminous prices stands at 170 on March 27, as compared with 173 on March 20. Domestic demand has almost disappeared and only the diminishing output of the resultant sizes kept steam prices from slipping to lower levels in those sections of the country where bituminous coal is used for household purposes.

WHY INDUSTRIAL BUYER IS OUT OF THE MARKET

The industrial consumer had several motives for withdrawing, temporarily at least, from the market. Present consumption rates are so low that reserve stocks are almost topheavy; indications that an announcement of cuts in freight rates will soon be made and the persistent belief that non-union fields will be able to supply fuel needs above existing stocks are the main reasons. No one wants to be caught after the strike with stocks of coal on hand that cost more than its replacement value. That the non-union supply may be adequate is being shown by the increasing desire of those operators to take on forward commitments, and dull times are surely ahead for the coal man unless the present suspension is sufficiently prolonged to enable consumers to work off the reserve supplies now in hand.

Production in the anthracite branch of the industry,

however, has been maintained by the appearance of eleventh-hour business. Producers have even been able to move the less-favored family sizes, but prices have not been greatly strengthened, as the tonnage offered has been sufficiently heavy to meet the demand. At the present rate of domestic buying, retail stocks will last well into May. Steam coals are not active, with the exception of barley. Lake business has not yet appeared; only two boats have been filled at Buffalo, whereas



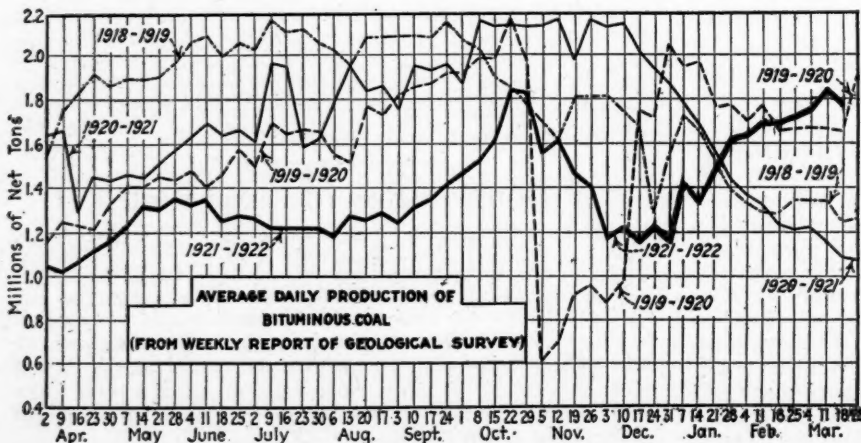
normally at this time many thousands of tons would have been loaded in anticipation of the opening of navigation.

The beehive coke market is decidedly softer, but so far the demand has absorbed the tonnage without any lowering of spot prices.

BITUMINOUS

Production of bituminous coal was 10,784,000 net tons during the week ended March 18, a decrease of 331,000 tons when compared with the preceding week. Early reports of loadings for last week indicate a recovery in the rate of output. In spite of the decrease, production so far exceeded consumption that nearly 2,500,000 tons were added to consumers' stock piles.

A canvass of bituminous coal stocks made by the Geological Survey shows that on March 1 there were approx-



Estimates of Production

(Net Tons)

BITUMINOUS

Week ended:	1921-1922	1920-1921
March 4 (b).....	10,541,000	7,278,000
March 11 (b).....	11,115,000	6,900,000
March 18 (a).....	10,784,000	6,512,000
Daily average.....	1,797,000	1,020,000
Coal year.....	413,876,000	510,051,000
Daily av. coal yr.....	1,400,000	1,719,000

ANTHRACITE

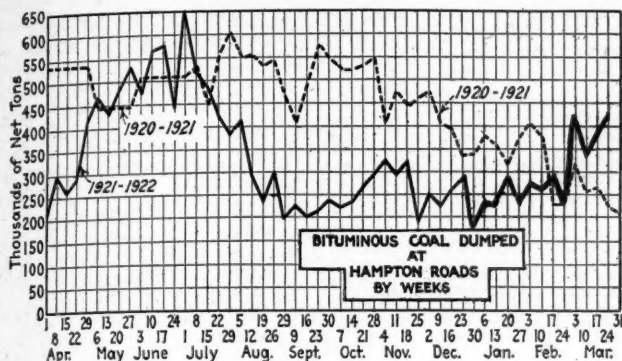
March 11.....	1,982,000	1,925,000
March 18 (a).....	1,907,000	1,687,000
Coal year.....	83,168,000	87,158,000

COKE

March 11.....	154,000	162,000
March 18.....	149,000	118,000
Calendar year.....	1,443,000	2,375,000

(a) Subject to revision. (b) Revised from last report.

imately 52,500,000 tons in storage, as compared with 47,500,000 tons on Jan. 1. It is estimated that with the coal now in transit stocks will be around 63,000,000 tons on April 1, equal to the amount in hand when the armistice was signed, but representing a longer period of supply because of the lower rate of present requirements.



All-rail movement to New England was 4,064 cars during the week ended March 18, an increase of 370 cars over the preceding week. The increase was due to shippers pushing

tonnage on expiring contracts, rather than to any increase in demand. Pennsylvania operators are almost out of the running, due to competition from Hampton Roads. Contract offers fail to interest buyers at the present time. Some of these offers are based on the 1917 wage scale, and this apparently is the program where operators are free from the union.

Hampton Roads dumpings for all accounts totaled 422,420 net tons during the week ended March 23, as compared with 377,307 tons in the preceding week. Coastwise markets took the larger part of this tonnage, although New England is surfeited with coal. Tonnage at the Roads is not accumulating, which is attributed to operators shipping heavily to Western points in anticipation of the strike. Low-priced coal at the Roads has brought a cargo to Baltimore for the first time except for one emergency shipment during the war. Coastwise freights have a softening tendency because of the lack of inquiry. The spread of the New England textile strike is a further unfavorable market factor.

Mild weather has lowered the call from householders and the domestic market is very stagnant. This, coupled with the heavy shipments of steam coals, has cluttered the yards with domestic "no-bills." A number of operators have loaded and held every available car lately, so that April 1 will see a considerable tonnage on wheels, which will be

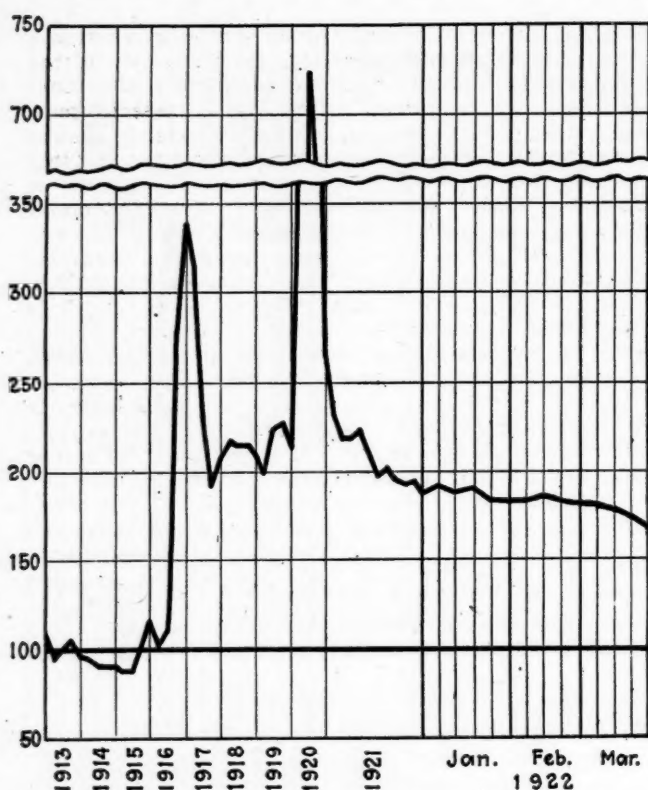
Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

		Market Quoted	Feb. 27, 1922	Mar. 13, 1922	Mar. 20, 1922	Mar. 27, 1922†			Market Quoted	Feb. 27, 1922	Mar. 13, 1922	Mar. 20, 1922	Mar. 27, 1922†
Low-Volatile, Eastern													
Poconahontas lump.....	Columbus.....	\$3.25	\$3.15	\$3.05	\$2.60@	\$2.90	Hocking screenings.....	Columbus.....	\$1.50	\$1.50	\$1.55	\$1.35@	\$1.55
Poconahontas mine run.....	Columbus.....	2.15	1.85	1.85	1.65@	1.90	Pitts. No. 8 lump.....	Cleveland.....	3.10	3.05	2.90	2.75@	2.90
Poconahontas screenings.....	Columbus.....	1.40	1.45	1.15	1.15@	1.30	Pitts. No. 8 mine run.....	Cleveland.....	2.00	1.90	1.90	1.80@	1.90
Poconahontas lump.....	Chicago.....	3.15	3.15	3.15	2.50@	2.90	Pitts. No. 8 screenings.....	Cleveland.....	1.80	1.75	1.70	1.65@	1.75
Poconahontas mine run.....	Chicago.....	2.15	1.85	1.85	1.25@	1.50	Midwest						
Poconahontas lump.....	Cincinnati.....	3.15	3.15	2.85	2.50@	3.00	Franklin, Ill. lump.....	Chicago.....	3.25	3.45	3.40	3.00@	3.50
Poconahontas mine run.....	Cincinnati.....	1.75	1.75	1.70	1.65@	1.75	Franklin, Ill. mine run.....	Chicago.....	2.50	2.50	2.50	2.00@	2.50
Poconahontas screenings.....	Cincinnati.....	1.15	1.15	1.15	1.00@	1.25	Franklin, Ill. screenings.....	Chicago.....	2.00	1.85	1.95	1.85@	2.15
*Smokeless mine run.....	Boston.....	4.60	4.60	4.55	4.50@	4.65	Central, Ill. lump.....	Chicago.....	3.00	2.80	2.80	2.50@	2.75
Clearfield mine run.....	Boston.....	1.95	1.95	1.95	1.65@	2.25	Central, Ill. mine run.....	Chicago.....	2.35	2.35	2.35	2.10@	2.40
Cambria mine run.....	Boston.....	2.45	2.45	2.45	2.25@	2.60	Central, Ill. screenings.....	Chicago.....	1.80	1.75	1.75	1.75@	2.00
Somerset mine run.....	Boston.....	1.90	1.90	1.90	1.75@	2.00	Ind. 4th Vein lump.....	Chicago.....	3.25	3.25	3.15	3.00@	3.25
Pool 1 (Navy Standard).....	New York.....	3.00	2.95	2.85	2.75@	3.00	Ind. 4th Vein mine run.....	Chicago.....	2.50	2.40	2.45	2.25@	2.50
Pool 1 (Navy Standard).....	Philadelphia.....	3.05	3.05	3.00	2.65@	3.00	Ind. 4th Vein screenings.....	Chicago.....	2.00	2.15	2.00	2.00@	2.25
Pool 1 (Navy Standard).....	Baltimore.....	2.70	2.65	2.65	2.60@	2.70	Ind. 5th Vein lump.....	Chicago.....	2.90	2.80	2.80	2.65@	3.00
Pool 9 (Super. Low Vol.).....	New York.....	2.40	2.40	2.30	2.10@	2.40	Ind. 5th Vein mine run.....	Chicago.....	2.25	2.35	2.20	2.10@	2.35
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.45	2.45	2.35	1.90@	2.45	Ind. 5th Vein screenings.....	Chicago.....	1.75	1.60	1.60	1.65@	1.90
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.40	2.15	2.15	2.20@	2.30	Standard lump.....	St. Louis.....	2.60	2.60	2.55	2.40@	2.60
Pool 10 (H. Gr. Low Vol.).....	New York.....	2.00	2.00	1.90	2.00@	2.20	Standard mine run.....	St. Louis.....	1.95	1.85	1.80	1.80@	1.90
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.10	2.10	2.10	1.70@	2.10	Standard screenings.....	St. Louis.....	1.10	1.20	1.10	1.25@	1.40
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	2.10	2.10	2.10	2.15		West. Ky. lump.....	Louisville.....	2.65	2.45	2.35	2.25@	2.50
Pool 11 (Low Vol.).....	New York.....	1.75	1.70	1.70	1.60@	2.00	West. Ky. mine run.....	Louisville.....	1.85	1.85	1.75	1.65@	1.90
Pool 11 (Low Vol.).....	Philadelphia.....	1.75	1.75	1.75	1.60@	1.80	West. Ky. screenings.....	Louisville.....	1.80	1.65	1.45	1.40@	1.75
Pool 11 (Low Vol.).....	Baltimore.....	1.85	2.05	2.05	2.00@	2.10							
High-Volatile, Eastern													
Pool 54-64 (Gas and St.).....	New York.....	1.50	1.60	1.50	1.50@	1.60	South and Southwest						
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.50	1.50	1.50	1.30@	1.55	Big Seam lump.....	Birmingham.....	2.60	2.60	2.60	2.00@	2.25
Pool 54-64 (Gas and St.).....	Baltimore.....	1.40	1.55	1.55	1.55		Big Seam mine run.....	Birmingham.....	1.85	1.85	1.85	1.70@	2.00
Pittsburgh sc'd. Gas.....	Pittsburgh.....	2.65	2.70	2.65	2.60@	2.70	Big Seam (washed).....	Birmingham.....	1.85	1.85	1.85	1.75@	2.00
Pittsburgh mine run (St.).....	Pittsburgh.....	2.15	2.15	2.00	1.80@	1.90	S. E. Ky. lump.....	Louisville.....	2.55	2.35	2.10	2.00@	2.25
Pittsburgh slack (Gas).....	Pittsburgh.....	1.65	1.65	1.55	1.50@	1.60	S. E. Ky. mine run.....	Louisville.....	1.55	1.50	1.60	1.60@	1.60
Kanawha lump.....	Columbus.....	2.55	2.50	2.30	2.25@	2.35	S. E. Ky. screenings.....	Louisville.....	1.35	1.35	1.30	1.30@	1.50
Kanawha mine run.....	Columbus.....	1.60	1.60	1.50	1.40@	1.65	S. E. Ky. lump.....	Cincinnati.....	2.35	2.25	2.10	2.00@	2.25
Kanawha screenings.....	Columbus.....	1.40	1.40	1.45	1.25@	1.50	S. E. Ky. mine run.....	Cincinnati.....	1.75	1.35	1.45	1.25@	1.35
W. Va. Splint lump.....	Cincinnati.....	2.25	2.50	2.15	2.00@	2.25	S. E. Ky. screenings.....	Cincinnati.....	1.15	1.30	1.25	1.15@	1.35
W. Va. Gas lump.....	Cincinnati.....	1.85	2.15	1.85	1.90@	2.00	Kansas lump.....	Kansas City.....	5.00	5.00	5.00	4.00@	5.00
W. Va. mine run.....	Cincinnati.....	1.40	1.35	1.40	1.25@	1.50	Kansas mine run.....	Kansas City.....	4.00	4.00	4.00	4.00	
W. Va. screenings.....	Cincinnati.....	1.30	1.30	1.30	1.25@	1.35	Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50	
Hocking lump.....	Columbus.....	2.55	2.60	2.60	2.40@	2.70	*Gross tons, f.o.b. vessel, Hampton Roads.						
Hocking mine run.....	Columbus.....	1.90	1.90	1.75	1.65@	1.90	†Advances over previous week shown in heavy type, declines in italics.						

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

		Market Quoted	Freight Rates	March 13, 1922		March 20, 1922		March 27, 1922†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.61			\$7.60@7.75		\$7.60@7.75		\$7.60@7.75
Broken.....	Philadelphia....	2.66		\$7.00@7.50	7.75@7.85	\$7.00@7.50	7.75@7.85	\$7.00@7.50	7.75@7.85
Egg.....	New York....	2.61		7.35@7.75	7.60@7.75	7.35@7.75	7.60@7.75	7.60@7.75	7.60@7.75
Egg.....	Philadelphia....	2.66		7.15@7.75	7.75	7.15@7.75	7.75	7.25@7.75	7.75
Egg.....	Chicago....	5.63		*7.50	*6.90@7.40	*7.50	*6.90@7.40	*7.50	*6.95@7.40
Stove.....	New York....	2.61		7.85@8.10	7.90@8.10	7.75@8.00	7.90@8.10	7.90@8.10	7.90@8.10
Stove.....	Philadelphia....	2.66		7.75@8.15	8.05@8.25	7.85@8.15	8.05@8.25	7.85@8.15	8.05@8.25
Stove.....	Chicago....	5.63		*7.75	*7.20@7.60	*7.75	*7.20@7.60	*7.75	*7.20@7.60
Chestnut.....	New York....	2.61		7.90@8.10	7.90@8.10	7.85@8.00	7.90@8.10	7.90@8.10	7.90@8.10
Chestnut.....	Philadelphia....	2.66		7.75@8.15	8.05@8.25	7.75@8.15	8.05@8.25	7.85@8.15	8.05@8.25
Chestnut.....	Chicago....	5.63		*7.75	*7.20@7.60	*7.75	*7.20@7.60	*7.75	*7.20@7.60
Pea.....	New York....	2.47		4.50@5.00	5.75@6.45	4.75@5.50	5.75@6.45	5.00@5.50	5.75@6.45
Pea.....	Philadelphia....	2.38		4.75@5.00	6.15@6.25	4.75@5.00	6.15@6.25	5.50@6.00	6.15@6.25
Pea.....	Chicago....	5.63		*6.00	*5.60@6.10	*6.00	*5.60@6.10	*6.10	*5.60@6.10
Buckwheat No. 1.....	New York....	2.47		3.00@3.50	3.50	2.75@3.50	3.50	2.75@3.50	3.50
Buckwheat No. 1.....	Philadelphia....	2.38		2.75@3.25	3.50	2.75@3.25	3.50	2.75@3.25	3.50
Rice.....	New York....	2.47		2.00@2.60	2.50	2.00@2.60	2.50	2.00@2.60	2.50
Rice.....	Philadelphia....	2.38		2.00@2.50	2.50	2.00@2.50	2.50	2.00@2.50	2.50
Barley.....	New York....	2.47		1.50@1.75	1.50	1.50@1.75	1.50	1.50@1.85	1.50
Barley.....	Philadelphia....	2.38		1.50@1.75	1.50	1.50@1.75	1.50	1.50@1.75	1.50
Birdseye.....	New York....	2.47		1.65@1.75	2.00@2.50	1.65@1.75	2.00@2.50	2.00@2.50

*Net tons, f.o.b. mines. †Advances over previous week shown in heavy type, declines in italics.



Coal Age Index 170, Week of March 27, 1922. Average spot price for same period, \$2.05. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. The result is a series of index numbers, plotted in the above diagram.

an added strike safeguard. Loads are piling up in the Cincinnati Gateway section and are the heaviest of the year at the Russell (Ky.) yards.

ANTHRACITE

Production of hard coal was maintained during the week ended March 18. The output was 1,907,000 net tons, only 75,000 tons less than in the previous week. Last-minute orders provided full bookings for the producers and caused a check to the declining independent prices.

Retailers who have not already done so are filling their yards with stocks sufficient, at the present rate of dis-

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Mar. 11, 1922 Inclusive	Week Ended Mar. 11
U. S. Total.....	45.6	54.2	61.8
Non-Union			
Alabama.....	63.5	61.7	67.0
Somerset County.....	55.5	75.0	80.7
Panhandle, W. Va.....	55.3	49.0	58.6
Westmoreland.....	54.9	56.8	50.7
Virginia.....	54.8	58.0	68.6
Harlan.....	53.3	53.5	60.2
Hazard.....	51.7	61.7	62.0
Pocahontas.....	49.8	59.7	65.9
Tug River.....	48.1	62.6	74.2
Logan.....	47.6	60.6	69.3
Cumberland-Piedmont.....	46.6	48.7	54.9
Winding Gulf.....	45.7	63.0	73.3
Kenova-Thacker.....	38.2	53.2	63.4
N. E. Kentucky.....	32.9	45.3	55.1
New River.....	24.3	29.8	35.3
Union			
Oklahoma.....	63.9	60.1	65.2
Iowa.....	57.4	77.3	90.6
Ohio, north and central.....	52.6	45.5	51.8
Missouri.....	50.7	64.9	78.2
Illinois.....	44.8	52.9	59.6
Kansas.....	42.0	52.0	65.2
Indiana.....	41.4	52.2	55.3
Pittsburgh†.....	41.2	38.1	48.5
Central Pennsylvania.....	39.1	48.4	55.3
Fairmont.....	35.3	46.4	40.3
Western Kentucky.....	32.5	35.7	42.3
Pittsburgh*.....	30.4	29.2	36.4
Kanawha.....	26.0	13.9	15.7
Ohio, southern.....	22.9	24.6	26.1

* Rail and river mines combined.

† Rail mines.

‡ Union in 1921, non-union in 1922.

tribution, to last well into May. The householder is not buying for storage, but is confining his orders to present needs, as the possibility of lower mine prices and freight rates after the strike offers no inducements to take in more fuel than is needed to eke out the season. Steam coals are moving well, with barley the most active size. Lake business is being delayed by the heavy tonnage that will be carried over at the upper docks. All-rail movement to New England was 3,692 cars in the week ended March 18, as compared with 4,326 cars in the previous week.

COKE

Production of beehive coke dropped off 5,000 tons during the week ended March 18. The total output was 149,000 net tons. The market turned quiet recently but absorbed the tonnage at no lower prices than those lately quoted. There is little interest in second quarter contracts and indications are that needs for that period will be largely taken from the open market. The coal market is so soft that more operators have announced their intention to relight ovens, and this may cause production again to outstrip demand.

Foreign Market And Export News

Coal Paragraphs from Foreign Lands

ITALY—The price of Cardiff steam first is quoted at 41s. 9d., according to a cable to *Coal Age*. Last week's price was 42s. 3d.

BRAZIL — Coal imports at Rio de Janeiro during 1921, amounted to 657,727 metric tons, as compared with 870,681 tons in 1920 and 696,705 tons during 1919. Great Britain supplied 200,779 tons and the United States 465,032 tons during the last year.

GERMANY—Production of coal in the Ruhr region for the week ended March 11 was 1,927,000 metric tons, according

to a cable to *Coal Age*, as compared with 1,838,000 tons in the week preceding.

A German iron works has been purchasing fuel from a Chilean company of Lebu for experimenting in Germany to determine whether Chilean coal is fitted for coking purposes.

NEW SOUTH WALES—Production in 1921 exceeded 10,000,000 tons, which is a record. Sectional disputes continue to hamper operations, but the miners have overwhelmingly rejected a proposal to work a nine day fortnight.

BELGIUM—The situation on the Belgian coal market is unchanged. De-

mand continues to weaken while, at the same time, British imports increase. The arrested re-lighting of furnaces in the metallurgical industries has brought about a certain weakness in coke, the demand for which is less sustained.

Foreign Coal in San Francisco

Shipments from Wales, England, and Australia are reaching the port of San Francisco with fair regularity. The coal is of a grade comparable with the best Utah coals. During 1921, a total of 76,000 tons of coal and 1,300 tons of coke was received from foreign sources. This coal was imported from England, China, Australia, Japan and France. The total valuation was somewhat less than \$500,000. Local demand for coal is now approximately 8,000 to 10,000 tons per month.

The movement of foreign coal is expected to continue as long as ocean freight rates are as low as they are and the railroad rates are prohibitively high.

Canada Inquires for British Coals to Bridge American Strike; Export Prices Firm

BRITISH coal production declined slightly during the week ended March 11. The output was 4,996,000 gross tons, according to a cable to *Coal Age* as compared with 5,039,000 tons during the first week in March. Inquiries are circulating among the trade from Canadian sources, due to the anticipated stoppage of American coal during the strike. Montreal is asking for figures on 36,000 tons of Welsh coal, delivery over six months.

During February coal worth £4,446-225 was exported from Britain, compared with February of last year this is an increase of £205,605, and a decrease of £5,247,487 from February, 1920.

The last few days have seen an increase in the time worked at the pits. In Northumberland nearly all collieries are now on full time, while the employment conditions in Durham have very much improved. Among recent orders reported are 35,000 tons of best steam coals for the Norwegian railways, and for other buyers, 10,000 best Durham bunkers, 27,000 tons gas seconds, and 20,000 tons best steams.

Scotland is getting ready for the anticipated demands from the north of Europe when the Baltic opens up. Other contracts accruing to Scotland are from France, Italy, the western Mediterranean and South America.

While the export trade throughout Britain seems definitely to be on the turn, the stoppage in the shipbuilding and engineering industries has served to delay further the recovery which was just becoming apparent.

The net production costs in the third quarter of 1921 were £58,372,968 or 26s. 9d. per ton on the output of 48,687,243 tons, according to the *Colliery Guardian*. Proceeds for the same period were £63,420,471 or 29s. 76d. per ton, a profit of £5,047,503. During the preceding quarter when the strike was in full blast, only 1,555,757 tons were produced at the enormous loss of £10,413,650. Assuming that 50,000,000 tons is a normal output for a three-months' period the industry lost approximately \$1 per ton during the period of enforced idleness.

February Exports Increased Slightly

There was a slight increase in exports of bituminous coal in February, as compared with January, but the volume of business continues to be almost negligible when the exports to Canada are

excluded. The detailed figures, which are those of the Bureau of Foreign and Domestic Commerce are as follows:

FEBRUARY EXPORTS AND IMPORTS (Gross Tons)

	Feb. 1921	Feb. 1922
Exports, bituminous coal:		
By rail to		
Canada.....	628,860	660,796
Mexico.....	25,807	5,254
Total.....	654,667	666,050
By vessel to		
West Indies.....	14,162	13,431
Panama.....	47,469	
Cuba.....	42,213	50,101
Total.....	103,844	63,532
France.....	54,132	3,785
Italy.....	104,693	7,414
Netherlands.....	38,555	2,537
Norway.....	757	
Sweden.....	9,521	
Denmark.....	28,040	
Total Europe.....	235,698	13,736
Argentina.....	50,838	4,054
Brazil.....	42,208	16,920
Chile.....	39,667	6,889
Uruguay.....	6,676	
Total South America.....	139,389	27,863
Egypt.....	50,439	21,401
Other countries.....	74,639	21,005
Total bituminous*.....	1,258,676	813,587
Total anthracite.....	291,950	274,905
Total coke.....	27,238	31,534
*Does not include fuel or bunker coal laden on vessels engaged in the foreign trade which was for February, 1921, 577,315 tons; for February, 1922, 358,544 tons.		
Imports, bituminous coal:		
Imported from:		
United Kingdom.....		6,291
Canada.....	54,279	75,652
Japan.....		881
Australia.....	1,954	10,195
Other countries.....	25	
Total bituminous.....	56,258	93,019
Total anthracite.....	32	9,154
Total coke.....	1,840	5,074

Hampton Roads Dumps Large Tonnage

Hampton Roads has been preparing for the strike by breaking all dumping records for the past six months. During the first three weeks of March more than 1,000,000 tons went over the piers.

The Bethlehem Steel Co. was carrying coal at the rate of 10,000 tons every ten days to its Sparrow's Point plant, dealers in touch assigning the forthcoming strike as the reason.

Every preparation is being made for an unusually large non-union output. Dealers were hearing reports that British operators are preparing to enter the American field, and to ship large quantities of Welsh coal.

While the Norfolk & Western and the Virginian railways do not tap the union

coal fields, the territory served by the Chesapeake & Ohio, with terminals at Newport News is largely unionized. For this reason dealers were of the opinion the two Norfolk piers will witness a largely increased activity, while the Newport News piers will suffer.

Hampton Roads Pier Situation

	Week Ended March 16	March 23
N. & W. Piers, Lamberts Point:		
Cars on hand.....	1,598	1,407
Tons on hand.....	89,810	73,257
Tons dumped.....	158,087	158,488
Tonnage waiting.....	18,000	8,000
Virginian Ry. Piers, Sewalls Point:		
Cars on hand.....	1,690	1,733
Tons on hand.....	84,500	86,650
Tons dumped.....	93,418	135,631
Tonnage waiting.....	15,000	11,412
C. & O. Piers, Newport News:		
Cars on hand.....	1,234	1,218
Tons on hand.....	61,700	60,900
Tons dumped.....	85,377	83,042
Tonnage waiting.....	1,100	2,935

Export Clearances, Week Ended March 23, 1922

FROM HAMPTON ROADS:	
For Atlantic Islands:	Tons.
Nor. S.S. Tune, for Curacao.....	2,656
Br. S.S. Bethlehem, for Fort de France.....	2,847
Nor. S.S. Commodore Rollins, for Port Antonio.....	522
For Brazil:	
Am. S.S. Robin Gray, for Rio de Janeiro.....	8,572
Br. S.S. Dundrennan, for Rio de Janeiro.....	3,500
For Canada:	
Nor. S.S. Erholm, for St. Johns, N. B.....	1,735
For Cuba:	
Am. Schr. John R. Fox, for Cienfuegos.....	1,159
Nor. S.S. Thorsdal, for Havana.....	3,354
FROM PHILADELPHIA:	
For Cuba:	
Nor. S.S. Munorway, for Havana....	—
For Canada:	
Br. Schr. Flowerdew, for St. Johns...	—

Pier and Bunker Prices, Gross Tons

	March 18	March 25†
PIERS		
Pool 9, New York.....	\$5.45@ \$5.75	\$5.35@ \$5.65
Pool 10, New York.....	5.15@ 5.40	5.10@ 5.35
Pool 9, Philadelphia.....	5.50@ 5.85	5.40@ 5.70
Pool 10, Philadelphia.....	5.20@ 5.60	5.00@ 5.30
Pool 71, Philadelphia.....	5.70@ 6.00	5.55@ 5.80
Pool 1, Hamp. Rds.....	4.50@ 4.65	4.50@ 4.65
Pools 5-6-7 Hamp. Rds.....	4.30	4.30
Pool 2, Hamp. Rds.....	4.55	4.55
BUNKERS		
Pool 9, New York.....	\$5.75@ \$6.05	\$5.75@ \$6.10
Pool 10, New York.....	5.45@ 5.75	5.45@ 5.70
Pool 9, Philadelphia.....	5.85@ 6.10	5.60@ 5.85
Pool 10, Philadelphia.....	5.50@ 5.85	5.20@ 5.60
Pool 1, Hamp. Rds.....	4.80	4.80
Pool 2, Hamp. Rds.....	4.70	4.70
Welsh, Gibraltar.....	40s. 6d. f.o.b.	40s. 6d. f.o.b.
Welsh, Rio de Janeiro.....	55s. f.o.b.	55s. f.o.b.
Welsh, Lisbon.....	40s. f.o.b.	40s. f.o.b.
Welsh, La Plata.....	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa.....	42s. t.i.b.	42s. t.i.b.
Welsh, Messina.....	38s. t.i.b.	38s. t.i.b.
Welsh, Algiers.....	37s. f.o.b.	37s. f.o.b.
Welsh, Pernambuco.....	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Bahia.....	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Madeira.....	38s. f.a.s.	38s. f.a.s.
Welsh, Teneriffe.....	38s. f.a.s.	38s. f.a.s.
Welsh, Malta.....	42s. f.o.b.	42s. f.o.b.
Welsh, Las Palmas.....	40s. f.a.s.	40s. f.a.s.
Welsh, Naples.....	38s. f.o.b.	38s. f.o.b.
Welsh, Rosario.....	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore.....	55s. f.o.b.	55s. f.o.b.
Port Said.....	46s. 6d. f.o.b.	46s. 6d. f.o.b.
Belgian, Antwerp.....	30s.	30s.
Alexandria.....	47s.	47s.
Bombay.....	38 rupees	38 rupees
Capetown.....	39s.	39s.

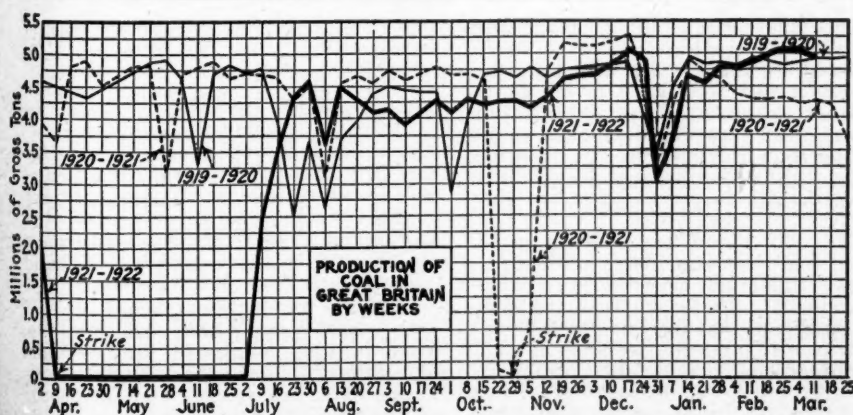
Current Quotations British Coal f.o.b.

Port, Gross Tons

Foreign Quotations by Cable to Coal Age

	March 18	March 25†
Cardiff:		
Admiralty, Large.....	27s. @ 27s. 6d.	27s. @ 27s. 6d.
Steam, Smalls.....	19s. @ 20s.	19s. @ 20s.
Newcastle:		
Best Steams.....	25s.	24s. 6d.
Best Gas.....	24s. @ 25s.	24s. @ 25s.
Best Bunkers.....	23s. 6d. @ 24s.	22s. 6d. @ 23s.

†Advances over previous week shown in 'heavy' type; declines in *italics*.



North Atlantic

Market Softens, Causing Many Mines to Close

Thirty Operations Suspend in Monongahela District—No Apprehension of Shortage Felt—Stocks Heavy and Non-Union Coal Easy to Obtain

THE market has softened to such an extent that many mines have been closed, the greatest curtailment being in the Monongahela district, where 30 operations ceased last week. No apprehension of a shortage is being shown. The volume of stocks and the ease with which non-union coal can be obtained have rendered the buyer indifferent to the market.

Shippers are anxious to contract but the consumer desires to work off his large reserve before entering into new agreements. The New York harbor is well supplied with loaded boats, while receipts have been much lower in the past week. A predicted anthracite shortage is causing some Philadelphia dealers to make inquiries for a bituminous substitute.

NEW YORK

Prospects of a shortage after April 1 failed to create any activity here last week. If anything, the situation was a trifle quieter.

Less coal is being sent forward. Consumers are well prepared for some time ahead and this accounts for the apparent indifference manifested at this time.

Contract coal is moving in good force and in some instances additional tonnage is being taken. Public utilities are well fixed. They feel they will be able to meet any emergency that may arise.

The approach of the conflict has not prevented producers of some non-union mines from quoting contract prices which range \$2@ \$2.50 according to grade and subject to wage adjustments. Already there are those who are wondering whether English coals will be brought here should the strike continue for any length of time.

Empty boats are hard to pick up. The demand has created a shortage and rates have advanced rapidly. Harbor delivery boat rates are about 45c. and for boats from 600 tons upward rates are about \$12 per day.

CENTRAL PENNSYLVANIA

Monthly production up to March 17 was 45,172 cars, as compared with 41,829 cars to the same date in February. This is the largest production rate for a year.

This field is only partially unionized. Cambria County is largely union, the chief exceptions being the mines in the vicinity of Johnstown and the Weaver and Coleman operations at Colver and

Revloc. The miners of the Pennsylvania Coal & Coke Co., the Altoona Coal & Coke Co., and the Russett Coal Co., are organized. Less than half the mines in Somerset County are unionized, the principal exceptions being the Berwind-White Co., at Windber. Clearfield and Indiana operations are largely unionized.

UPPER POTOMAC

Little or no improvement is discernible. Production is extremely limited, owing to the poor demand and many dead loads have accumulated between Thomas and Piedmont. Some companies are getting out a little railroad fuel but that is all. Prices are so low it is impossible to operate. Where union miners have attempted to prevent other men from going to work, companies have shut down to avoid trouble. With the small demand existing and prices on so low a level most producers are refraining from attempting to operate at all.

BALTIMORE

There is very little local demand and prices are hanging about the same as for some weeks past, even before the strike threat became acute.

Shipment here for the first time, except for one war-time emergency, of soft coal from Hampton Roads, has been recorded. The low price of coal at Tide at Hampton Roads led to the shipment of one large cargo to the Bethlehem Steel Co. at Sparrows Point. The export situation is again improving after one of the most remarkable flat periods in the history of the trade. For the eleven days from March 11 to 21 five vessels cleared with export coal cargoes, a total of more than 21,000 tons cargo, and 1,100 tons bunker. The distribution was wide, including one vessel each to Argentine, Cuba, Egypt, Porto Rico and Italy.

PHILADELPHIA

Most of the concerns which had recently ordered excess stock had their orders about filled last week and this left an excess of tonnage to be absorbed by the market. The softening was followed by a drop in spot prices from 15c. to 25c. and occasionally as much as 35c. has been cut from prices of the preceding week.

This has made shippers more anxious to place coal on a contract basis, yet with so much stock ahead the big consumer is now inclined to stand firm and use up much of the accumulation. Some consumers are outspoken in believing that they will yet get good coal from the best shippers on a basis of \$2 contract before the end of the summer.

The only other new feature in the trade has been a number of inquiries from retailers not accustomed to handle bituminous. There seems to be some inclination in that direction to take in a little coal to meet the demands of small manufacturing plants. In addition the retailers are no doubt looking forward to the possibility of selling some bitu-

minous coal for domestic consumption when their anthracite stocks become exhausted.

FAIRMONT

Thirty mines in the Monongahela district were closed last Saturday. Operators said that while they have been pushed to capacity to fill demands during the last few weeks, in anticipation of a coal strike, their contracts have been filled. Suspension in the Scott's Run field is now almost complete.

West

KANSAS CITY

Operators have been holding meetings and planning for action April 1, or rather inaction. Of course, the strike is the subject of discussion all around. A great deal depends on what the railroad-owned mines will do when the pinch for coal is reached. It will be recalled that in the strike of 1910 the railroad mines broke away and made settlement with the miners and this has generally been the case in all prolonged strikes.

Some operators in the past have also made independent settlements with their men and these same operators, or at least some of them, are still in business, and may not have the nerve to hold out until a settlement fair to the public generally can be made.

Steam grades are scarce and the demand exceeds the supply, but prices are unchanged. Kansas lump is plentiful.

DENVER

The Colorado Fuel & Iron Co. has denied a proposed wage cut, April 1, rumors of which were circulated during the recent convention of delegates of District 15, U. M. W., in Denver. The company, as the largest operator, does not recognize the union, and this is believed to be responsible for the circulation of reports to influence company miners in the contemplated walkout April 1.

The meetings of the miners' international union in Indianapolis have a representation of four delegates of District 15, who have been instructed to stand with the national committee for a suspension of work. The fact that a 30-per cent cut in wages has already been made effective gives rise to speculation as to how successful the strike will become in Colorado.

Production, in the meantime, is somewhat below normal, and no special preparations are being taken by retailers to fill their yards. Prices are unchanged, the only temporary underselling being in the lignite fields.

SALT LAKE CITY

Owing to the impending strike business is holding up. Stocks in the city are low. If the strike does come things may prove serious, for dealers are not buying much coal in view of the prospect of price reductions. Railroads are reported to have supplies on hand that will last from 60 to 90 days.

February production reached 402,492 tons. Last year it was 322,688 tons, while in 1920 it totaled 515,214 tons. The January figure was 421,631 tons. These data are from Chief Inspector of Mines, C. A. Allen.

Anthracite

Some Last-Minute Business Keeps Production Going

Demand Is Insufficient to Affect Independent Prices Markedly—Retailers' Stocks Will Carry Into May—Steam Coals Active—Only Two Lake Cargoes Loaded

ANTHRACITE production has been maintained by the appearance of last-minute business before the date set for the suspension of mining. Independent prices fail to show much stimulation, however, as the demand has not been heavy enough to tax the tonnage available.

Most retailers have sufficient stocks to carry them into the month of May, or longer if the householder continues his present state of indifference to the strike. Retail business is only on a hand-to-mouth basis. Steam coals are moving well, with barley the most active. Only two Lake cargoes have been loaded so far this season in anticipation of the opening of navigation, where normally this tonnage would amount to several thousand tons.

NEW YORK

All producers report increased orders and more than one independent operator stopped taking new business last week, as they had already booked sufficient shipments to take them up to April 1. The companies had no difficulty to keep their stocks moving and in the last week received many new orders, some from dealers who neglected earlier in the month to fill their yards.

Buyers were not willing to pay premiums for independent coals with the result that sales were made at company circular. Occasionally offers of certain domestic coals already in boats were heard at prices below company schedules. There are many loaded boats in the harbor containing all sizes most of which is probably being held to await a more favorable market.

With the suspension in force and the prospects of more coal coming forward doubtful, there is bound to result more or less competition for available tonnage.

The steam sizes were easy, the greatest activity being noticed in barley which for the best grades, was bringing a premium.

BALTIMORE

Hard coal sales here are very light, the springlike weather having brought an end to a brief spurt in seasonal small buying. The people are apparently not worrying over a strike threat, feeling sure that they will get their coal later in the year. Representatives of the Baltimore Coal Exchange appeared be-

fore the House judiciary committee of the Maryland legislature in the past week to urge the passage of a bill which will establish the net ton in Maryland as the standard instead of the gross ton. The bill is being warmly contested on both sides.

BOSTON

There is no marked change in the local situation. Sources of supply tightened up materially the past few days and there were relatively few shippers who were in position to furnish coal for the last days of the month.

The retail trade here is disposed to rest on present reserves, which roughly are on about a 90-day basis. There are a few far-sighted buyers who are taking on stove and chestnut in heavier proportion than usual, their idea being that these will probably be the short sizes when mining is resumed. Householders are buying only from hand to mouth.

PHILADELPHIA

Demand from all quarters grew quite strong last week. Some retailers who were inclined to carry light stocks woke up and tried to hurry in shipments of prepared sizes. Some of the independents early in the week flatly declined to take any more business as they already had as much on their books as they hoped to fill.

Retailers feel that many a buyer in ordering two or three tons lately was really putting aside a ton in case of emergency. During the past week also the dealers received an increasing number of orders from their best trade asking that their entire next winter's supply be delivered at once.

The quickening of the demand can be best understood when it is said that many shippers even refused to take more orders for pea coal, a size which has been simply dragging along since last fall.

The condition of the steam sizes continues good, but buckwheat does not strengthen, and yet can be said to be in active demand. Rice is not yet quite up to normal, but barley is being moved as fast as produced. There is still much independent buckwheat to be had at \$3 and rice at \$2, but all seem able to get \$1.50 for barley.

ANTHRACITE FIELDS

Production is on the increase and every mine has been working to capacity. The only dull point is at one of the Pennsylvania Coal Co.'s mines, the Old Forge Colliery, where the men are out on a strike. The river washeries to some extent have resumed operations and this tends to increase the output.

BUFFALO

Buying is chiefly for the early needs of dealers. Most of them have already prepared for furnishing what their customers are likely to require during the remainder of the winter. Stocks are undoubtedly large and the outlook is for rather light consuming demand in the next few weeks.

Two coal cargoes will be loaded here within the next few days, but the expected activity has not developed. It has been customary in previous years to have many thousand tons loaded in anticipation of the opening of navigation, but this year will in all probability be different. Upper-lake buyers will probably hold off to await the developments of the strike situation.

Coke

BUFFALO

Firm prices are shown in the coke market, with the demand on a small basis. Production has been much curtailed, and this is indicated by the slowness with which deliveries are made. Prices are \$4.50@4.75 for Connells-ville foundry, \$3.25@3.50 for furnace and about \$3 for some of the domestic sizes, to which add \$3.64 for freight.

CONNELLSVILLE

The spot furnace coke market has turned decidedly quieter in the past week, but not until fairly heavy buying had absorbed all coke offered at under \$3.50, leaving the market now firm at that figure. Sales previously made have taken care of all production and no coke has been forced on the market. Between 400 and 500 ovens are scheduled for blowing in within the next week or so, and there is some question as to how the situation will take the increased supply. Reports now have it that the contract recently made by the Lackawanna Steel Co. for 15,000 tons a month over the second quarter was at nearer \$3.25 than \$3.50. There are negotiations on other contracts, but the parties are not getting together very well and it is possible coke will be bought from month to month.

Foundry coke remains firm and in good demand. The market is quotable as follows: Spot furnace, \$3.50; spot foundry, \$4.25@4.75. The *Courier* reports production during the week ended March 18 at 75,800 tons by the furnace ovens and 38,220 tons by the merchant ovens, a total of 124,020 tons, a decrease of 1,940 tons.

UNIONTOWN

The coal market on the eve of the strike may be definitely described as soft. Some contracts have been offered local producers for delivery after April 1 but few have been closed. The offerings generally have been at a price slightly above the present market but the view generally among operators is that they desire to keep their tonnage open to take advantage of any favorable market development and certainly are not attracted by a price based upon the present market.

However, a price reaction on the market is not expected for some little time. Most consumers who must have an uninterrupted supply have anticipated the strike by stocking a surplus and even after piles are exhausted the production from the unorganized districts will be able to meet the demand for an extended period. Prices are: Sewickley, \$1.25@1.35; Pittsburgh steam, \$1.40@1.50 and byproduct, \$1.50@1.60.

Chicago and Midwest

Heavy Stocks Likely to Be Needed Before Strike Ends

Buyers Refuse Shipments in Lackadaisical Market—Most of Tonnage Moved Was on Contract or Old Orders—Receipts from East Dwindle

A LACKADAISICAL market prevailed in the last few days prior to the strike. Buyers' indifference was manifested by many refusals of shipments. Spot business was extremely limited and most of the tonnage moved was on contracts or old orders. Screenings moved comparatively well, but in no great volume. Spot prices show a further recession on all but the fines. Receipts of Eastern coals dwindled, even though prices are at the lowest point of the year.

Stocks are very heavy and the opinion seems to prevail that they will be needed before the strike is settled. Yards are cluttered with loads for which there is no demand and a few operators are loading and holding every available car, so that April 1 will find a considerable tonnage on wheels. Domestic coals are practically unsalable.

The Midwest market continues to astonish the coal men with its torpor but they are beginning to get used to that sensation so that less is said about it. It is perfectly plain that everybody who is going to buy coal before the strike has bought and that's all there is to it. The constant expectation of the past few weeks that somebody would start a flurry of buying, is now about dead.

Most industries and public utilities are now supposed to have about 90 days' fuel supply in stock. A few are fixed for about four months. The general opinion is that consumers with big stocks are going to be glad they figured on a long strike. One wise observer in the business declares that if the strike runs 60 days it will run until next fall and he is inclined to think it will go all the way though he believes Frank Farrington, president of the Illinois miners will do his level best to make a separate agreement with operators of this state.

Many coal producers in the middle states declare they are not trying to roll up any stocks at the mines in anticipation of the strike, for they can't see any market until late in the summer. However, the slightly freshening call for screenings compels most mines to make a good many cars of prepared sizes which are sluggish and are beginning to clutter up mine yards.

Throughout this district during the past week there has been general weakening of prices on everything but screenings. This includes non-union

coal from the East which has been known to sell in Chicago, in distress, at \$1.05, mine run. It was generally agreed on Saturday that quotations on prepared sizes had shaded down about 25c., while screenings generally had ascended nearly as much. Southern Illinois coal of this class touched \$2 and in one or two cases sales were made at \$2.15. Central and northern Illinois screenings showed the same tendency in less degree.

CHICAGO

The Chicago coal market could hardly be any more lackadaisical than it was during the past week. Nobody did any business to speak of beyond taking care of contracts and orders already booked. Screenings of all sorts moved fairly well, though no great volume was handled. "It wouldn't have made business any better if a million cars of screenings had been ready to deliver" commented a sales manager. "There was only a little demand and the supply took care of it nicely." Prices moved upward about 25c. a ton, making the average for southern Illinois screenings \$2, central Illinois about \$1.80 and northern Illinois \$1.70.

Buyers continue to be of distinctly independent turn of mind refusing shipments on slight pretexts, sometimes, making the life of the coal wholesaler unhappy. There is no scramble for any coal on the trading list, even for low-price non-union fuel from the East which is now selling in small quantities in Chicago for lower prices than at any time this spring. The call for Pocahontas, for instance, is so light that mines in that West Virginia region have been known to offer shipments to Chicago and then fail to make them because some other market at a few cents higher price was found at the last minute.

Retail trade in and about Chicago amounted to almost nothing at the end of last week, after a swell that was hardly perceptible following the colder weather earlier in the week.

SOUTHERN ILLINOIS

The pre-strike quietness in the Carterville field has been uncanny. There is no demand for any one particular size, except with a few companies who have screenings contracts.

There are no price changes except that here and there an operator in his anxiety to move lump, egg and nut has made some quotations that are far below the cost of producing. Railroad tonnage is unusually heavy on all roads and cars are plentiful.

Somewhat similar conditions prevail in Duquoin and Jackson county fields, except that the railroad tonnage is not much of a factor. Working time, however, does not average as well as in Carterville. Mt. Olive has shown up somewhat better, principally on account of the railroad coal, although a good tonnage of domestic has moved to the Chicago market and a little to Omaha.

In the Standard field there is little, if any, change. A good tonnage of railroad coal is moving and the mines

are getting three or four days per week. Those working on railroad coal get practically full time.

ST. LOUIS

A little cold weather helped the domestic business for a few days on the cheaper grades in small lots. Country domestic business is easing off. All country dealers seem pretty well stocked up for what they think their requirements will be. The same applies to city dealers, although the bulk of this coal is for small steam plants.

There is little demand locally, for a few plants have gradually accumulated some storage and others figure they can get along without it.

The cement and public utility plants have gradually put some coal away in the past two or three months and are able to take care of themselves for 60 days. Other plants figure that if the price of coal goes too high it will be cheaper to suspend.

WESTERN KENTUCKY

Western Kentucky is plodding along with comparatively little new business, although there is some demand for screenings, which are scarce in view of the light production of lump. One field will probably be closed down almost completely by the strike, but the other is under a wage agreement with a year to run. There are several big operating companies which are not unionized, which will probably be able to supply large tonnage.

Most producers have practically no business without strike clauses, while there is very little contract stuff for delivery after April 1.

LOUISVILLE

Demand for screenings has been better and prices are firmer. Poor production of lump is making for such short screenings supplies that some operators are cutting back to a mine run basis of operation, and are finding better demand for mine run in view of the fact that industrial concerns are being forced to take it.

The general attitude toward the strike is one of indifference, retailers having enough yard stocks to take care of them for a good while. Most of the retailers' purchases have consisted of steam coal, however, as the larger ones have good supplies of lump on hand.

Jobbers and producers do not appear to care one way or the other, some not even keeping up very closely with the daily press reports out of Indianapolis headquarters. Some of the operators met here last week, and informally discussed the strike situation. Much of eastern Kentucky and a part of western Kentucky will not be affected.

INDIANAPOLIS

Reports from the mines in the state show a big increase in production, most of which appears to be purchased by the Indiana market. It is the opinion of jobbers that this condition will prevail until the mines finally are shut down by the strike. Were the retailers as much in the market for prepared coal as the industries are for steam grades this would be the best season since the war period.

The public service companies appear to be most concerned about reserve supplies. Other industries are not greatly worried, since in most instances they are not producing to capacity.

Northwest

Storage Orders Are Few; Docks Cut Working Time

**Mild Weather Reduces Current Needs—
Dock Supply Is Adequate Strike Safe-
guard—Prices Firm, but Movement
Declines—Anthracite Very Sluggish
—Bituminous Screenings Scarce.**

MILD weather has removed the urge to buy so much coal for current needs and the strike fails to stir the consumer to any great storage activity. Docks have been caught in the backwash of storm orders filled and the disbelief that the strike will cause any shortage. Anthracite has been the hardest to move and only for bituminous screenings is there any demand.

Utilities have quietly accumulated surplus tonnage and railroads have drawn heavily on their contracts, mainly to avoid congestion and to have coal where it is needed. Prices are firm, as the trade feels that orders to be filled during the strike period will clear the docks before it is necessary to restock under the new conditions.

MILWAUKEE

The market continues on an even plane, with little enthusiasm manifested either in wholesale or retail circles. The outward movement by rail is slightly improved, probably because interior consumers are guarding against a possible strike shortage.

At present there seems to be no thought that prices will be any lower until there is a change in the scale of miners' wages. Dealers say, however, that cheaper coal is coming. There is no apprehension as to the sufficiency of the supply to meet any event. The anthracite supply is nearing the end, however, and the yards are replenishing their stocks by rail. From 25,000 to 30,000 tons of anthracite are tied up in the ruins of the Milwaukee-Western Fuel Co.'s sheds, which burned a few months ago. It is thought that when this coal is available there will be sufficient anthracite to pull through the summer months.

DULUTH

A slump in the market was most evident here last week with shipments from the docks falling off in response to mild weather and a general disbelief that a coal strike will cause any serious shortage. Anthracite was the hardest hit. Docks are laying off men and cutting down loading days.

From one source, however, the demand is steadily increasing. That is from the public utilities. These evidently feel that they can afford to take few chances, and that a prolonged strike is in order.

Railroads also are taking their share and are filling coal depots to capacity. In the majority of cases this coal was contracted for some time ago, and the present shipments mean only a clearing of dock space.

Industrial demand and iron range activities seem to have reached the lowest ebb possible. The probability is that a return to buying will have to come soon as many plants are increasing manufacturing activities.

Bituminous coal prices remain firm all along the line. Screenings are selling well and there is a possibility of a real shortage soon. Other classes, while not doing well, are holding price levels.

MINNEAPOLIS

After a period of severe storm, the Northwest has had mild melting weather and there has been little need of much heating. This seems to have taken away about all the buying incentive. The threat of a strike on April 1 is well

known, but very few seem to be giving much heed to it.

The danger to the Northwest is a complex one. There is an ample store of coal on the docks for some time to come—two or three months or longer. If the strike is prolonged and production on a full scale is not resumed until toward fall, then the demands from all sections will be so great that there will be no surplus available to fill the docks of the Northwest for the winter's supply.

But any stocking now in advance of early needs takes a chance that prices after the suspension is over, will be lower than present costs. Anyone laying in coal on present prices may take a sharp loss, so aside from the needs of the immediate future, but little buying is going on.

While commercial conditions have shown better prospects, there has been but little improvement in the volume of buying. Steam orders have been on a restricted scale for a long time. Now and then there has been a pickup, but it has been for a brief period only. Price conditions have been about the same since the adjustment on Eastern coals, involving an advance of 50 cents by those who had not made that advance several weeks before.

New England

Inquiries Few, Stocks Heavy, Marine Freight Market Weak

**Spread of Textile Strike a Depressing
Factor—Pennsylvania Operators Out
of Running—Contracts Offered on
1917 Scale Basis**

INQUIRIES are at a low ebb and much sales effort is needed to place tonnage in this market. Stocks are heavier than anticipated and the spread of the textile strike is a further unfavorable market factor. What little contracting has been done is only with old connections and consumers are averse to signing up for their needs at this time. Pennsylvania operators are about out of the running because of the competition from Hampton Roads. Some operators, however, are making contract offers based on the 1917 scale and this apparently is the program of those shippers who are free from the union.

Requests of two railroads for contract bids brought a flood of offers recently. Coastwise freights are expected to soften with lack of inquiry.

Steam trade continues unruffled. There is only light inquiry, and it still takes a lot of hard work to move coal arriving on the market. Prices on cars Mystic Wharf, Boston, range \$6@\$.15 for smokeless grades, but sales at these figures are only scattering.

Certain of the agencies are trying to close contracts, but other than those who have made informal arrangements with usual trade there is very little doing with respect to season's supply. Pennsylvania operators are also trying to interest buyers in contract terms, but this territory is so dominated by Pocahontas and New River that very little tonnage is likely to result from such efforts.

At Hampton Roads the visible supply is somewhat less than a week ago, but this is due more to increased inquiry for prepared coal in the West than to any better demand coastwise.

Both the New Haven and the Boston & Maine are rumored to have made purchases within a week. The former received bids for around 300,000 tons at Boston, the lowest bid being \$5.39 alongside for Kanawha, the other bids ranging up to \$5.90 alongside, all for high-volatile. Last year the price on the same contract was \$7.05 alongside. The Boston & Maine is understood to have bought 300,000 tons from the Pond Creek interests.

Coastwise freights continue on a moderately easy basis. The trade expects the freight market to simmer down to 90c or so for steamers, but at this writing there is a notable lack of inquiry. Barges, 2,500 tons and upward, are still quoted \$1.10@\$.15.

A further canvass of steam-users in shows reserves even larger than the the Eastern section of this territory 90 days stocks heretofore reported. The average now is at least 100 days, with several manufacturers carrying four-months' supply. The textile strike is spreading and this continues to be an unfavorable factor in the current market.

Eastern Inland

Coal Men Face Dull Times If Strike Is Not Prolonged

Heavy Stocks and Assurance of Adequate Non-Union Supply Preclude Eleventh-Hour Buying Against Strike—Opening of Lake Market Deferred

NO eleventh-hour buying against the strike has developed, as consumers are generally well stocked and have assurance of an adequate non-union supply. Uncertain deflation factors, because of the strike and freight rate situation, are delaying the opening of the Lake market. While the industrial outlook in this section is showing some improvement, it is certain that dull times for the coal man are ahead if the strike is not prolonged sufficiently to use up present heavy stocks.

Stocking programs of the railroads and public utilities have been modified at the last minute. The market has boarded on dullness and some distress coal has appeared.

COLUMBUS

Better buying of steam grades is developing. This is not as marked as might be expected under the circumstances and apparently the public has not been frightened to any extent. Stocks on hand are rather large. Railroads have accumulated stocks of about 60 days; public utilities in excess of 100 days and general manufacturing about 75 days or more.

There is still considerable coal moving but this is the result of orders booked early in March. Mine run is not quite as strong, while screenings are holding up fairly well. Purchasers who have not accumulated large stocks are still marking time but in all cases there is little fear of a fuel shortage.

Retail business continues quiet. Dealers are only buying what they need for the present. Few if any have stocked up to any extent. Retail prices are firm at former levels.

CLEVELAND

Union activities in preparation for the walk-out against a reduction of war-time wages has aroused no especial interest on the part of consumers. The feeling prevails that the miners must enjoy certain mental stages of excitement of the strike before they will be willing to get down to the "brass tacks" of a sensible settlement. According to information coming from sources close to Washington officials, the Government will make no move until after the strike has started and both sides have been allowed to blow off a little steam.

It is the possibility of a reduction in wages which is affecting the attitude of buyers. Coal is now selling for about

70 per cent above mine prices before the war, largely due to the high wages prevailing. Before the industrial structure can attain equilibrium the wages of coal miners and railroad labor must be reduced in line with other workers.

The industrial outlook continues to improve. This is due to better operations at steel, automobile and tire plants. The steel industry is operating at about 70 per cent of capacity, compared with the low point of 29 per cent in July. Last week saw higher prices for steel products, which with increased production brightens the outlook for industrial coal buying.

Bituminous coal receipts showed a further recession during the week ended March 18. Total receipts were 1,568 cars; divided, 1,175 to industry and 393 to retailers, a decrease of 77 cars.

EASTERN OHIO

Production aggregated 399,000 tons or approximately 64 per cent of potential capacity during the week ended March 18. This is an increase of 10,000 tons over the preceding week and registers a new high mark in weekly output for the current year.

Current consumption of steam coal has not been more than 60 or 70 per cent of that which has been produced during the past 60 days. The storage programs of the carriers are nearing completion and the proportion of tonnage mined going to them has receded, being offset by a better demand for storage fuel from some of the larger industrial users.

Retailers say that domestic consumers have stored sufficient coal to tide them over the remainder of the winter season, and that the lower temperatures prevailing during the past week have not resulted in any flurry of demand in retail trade.

There is no perceptible improvement in inquiries, and the market situation borders on dullness. Some small quantities of "distress" coal have been sold in the open market at ridiculously low figures aside from which the range on spot coal shows little change.

In the Lake trade, eastern Ohio is, as yet, manifesting little interest. Permits have been issued by the Ore & Coal Exchange for the loading of some 300,000 tons of coal including fuel, but this tonnage is spread over all the fields which participate in this trade. With some 3,000,000 tons at the Head-of-the-Lakes, coupled with the uncertain deflation factors as to mine labor and freight rates just ahead, the start this year will necessarily be delayed.

NORTHERN PANHANDLE

On the eve of a strike conditions remain virtually unchanged. Railroads are securing a little additional fuel but commercial users are not taking a large volume of tonnage. Non-union or open-shop mines are able to secure some business as a result of lowered mining costs.

PITTSBURGH

No new strike attitude on the part of the operators is being disclosed, producers being ready, as at all times since

their formal announcement late in December of withdrawal from the Central Competitive Field, to meet the miners of the district.

It is difficult to sell either union or non-union coal at this time, while holders of contracts have been taking extra tonnages for some time past, and contracts expire April 1.

It is not improbable that some of the non-union mines on the fringe of the district will have strikes April 1 and it is not entirely impossible that some mines in the Connellsville region will have trouble. A few months ago it was understood that many union miners from the Pittsburgh district were working in the Connellsville region, but there may not be so many retained on the payrolls at this time. A fair guess seems to be that some of the miners at non-union mines which have been running well will be disposed to strike while men at union mines that have been more or less idle will be inclined to seek employment.

As a result of very light demand prices have been softening further. Sewickley vein coal has been freely offered down to \$1.25, while some of the best byproduct and gas coals in the Connellsville region can be picked up at not over \$1.75. The Pittsburgh market is also softer, being quotable roughly as follows: Steam slack, \$1.30@\$1.50; gas slack, \$1.50@\$1.60; steam mine run, \$1.80@\$1.90; high grade gas, 3-in., \$2.60@\$2.70; Panhandle 14-in. domestic lump, \$2.75.

BUFFALO

Consumers will not need much fuel for at least a month in a good many instances, while a two-months' supply is not uncommon here. It will be a difficult time for the salesman in case the expected strike fails to last as long as expected.

Local offices say they will have plenty of coal to sell and that they have made arrangements accordingly. They foresee a quiet time for many weeks, since customers are already so hard to find.

Prices are not nearly as strong as it was predicted they would be at the end of this month. Some easing off in slack prices is reported, but this is not likely to last long. Quotations run about \$2.50 for Youghiogeny gas lump, \$2.25 for Pittsburgh and No. 8 steam lump, \$2 for Allegheny Valley and other mine run and \$1.60@\$1.70 for slack, adding \$2.36 to Allegheny Valley and \$2.51 to other coals for freight.

DETROIT

There is no active demand from either the steam plants or domestic consumers. No particular increase in volume of buying is apparent as a result of the strike action.

The seeming indifference among buyers is caused by a feeling that their requirements will be supplied by shipments from the unorganized territories. Basis for this may be found in the fact that something like 90 per cent of the present supply is coming from the non-union mines.

Ohio lump is quoted \$2.50@\$2.75, egg, \$2.25. mine run, \$1.85, slack, \$1.50. West Virginia lump is offered at \$2.25@\$2.50, egg, \$2, mine run, \$1.50, slack, \$1.30. Pittsburgh No. 8 14-in. lump is \$2.35, 3-in. lump, \$2.15, mine run, \$2, slack, \$1.85. Smokeless lump and egg is \$3.25.

Cincinnati Gateway

Unsold Tonnage Piles Up; Market Interest Slackens

**Strike Order Fails to Hold Market—
Adequacy of Non-Union Supply Re-
assures Consumers—Cancellations Are
Numerous—Screenings Firm as Pro-
duction Is Limited.**

THOSE who looked for business to brighten with the strike declaration of the union leaders have been badly mistaken. Instead of a buying rush there has been a decided slackening of interest. Loads are piling up at Portsmouth and are the heaviest of the year at Russell. While still inquiring for prices, the consumer is not at all active when it comes to placing orders. There have been numerous cancellations lately because of the apparent sufficiency of non-union supply.

Screenings show the best relative position, not only because there is some demand for this size but also because lump production is low, causing a scarcity. The domestic market is dead, despite price cuts, while retailers report very sluggish business.

LOW-VOLATILE FIELDS

NEW RIVER AND THE GULF

New River production increased slightly during the week ended March 18. However, there does not appear to have been any general increase in the demand, smokeless being plentiful on the market. There is only a fair demand at Tidewater and prices are decidedly soft.

Gulf production is steadily climbing as reflected in a heavier movement over the Virginian Ry. with train and shop crews being called back to work. So far, however, the output has not gone beyond 65 per cent. Labor shortage is interfering with production to some extent.

POCAHONTAS AND TUG RIVER

The Pocahontas output declined to some extent as the demand weakened and at various points on the Norfolk & Western there were a good many "set-outs." Terminals were blocked in some instances. Toward the latter part of the week, however, the situation became much better insofar as the Western movement was concerned. The Eastern market has been rather sluggish as compared with conditions prevailing during the earlier part of the month.

Tug River mines continue to produce coal in large quantities, with the output in excess of 110,000 tons a week or above 75 per cent of capacity. Some trouble is being experienced in

securing enough open-tops. All the mines in this field are working. The movement is largely to Western markets, the greater part of it on contract.

HIGH-VOLATILE FIELDS

KANAWHA

Few mines outside of the small percentage working on a non-union basis are producing any coal. The market is poor with prices so low as to debar union mines from attempting to enter the market or even from making contracts for the next coal year in view of the uncertainty of new wages to be paid in this territory.

NORTHEASTERN KENTUCKY

Owing to a cessation of steam buying for storage purposes, there is comparatively little market. It is next to impossible to dispose of lump. A scarcity of screenings has bolstered prices, which are close to the price for mine run. Some buyers have canceled orders now that it appears to be so easy to secure all the steam coal they need.

LOGAN AND THACKER

Prevailing market conditions are not affecting the Logan production and the output continues at the rate of 300,000 tons a week, with nearly all mines working at full capacity. The mere fact that the mines will be in a position to continue in the event of a strike is giving operators a strategic advantage in securing orders.

Thacker production continues at the rate of 60 per cent of potential capacity. Companies are making arrangements to increase their capacity. The larger part of the output is destined for Western markets, the principal demand being for steam grades. Producers in this field who lost their market during a strike have regained such markets in large part.

SOUTHEASTERN KENTUCKY

The market has been in a very unsettled state. There has been a little strengthening here and there in steam and mine run but further weakening in block and egg.

The effect the strike will have on this field is still vague. Some of the larger operators have recently signed an agreement with the 19th District—headquarters at Knoxville—providing for two years' work on the basis of the 1917 contract, and it remains to be seen whether they will be able to work under this agreement after April 1.

CINCINNATI

Some Tidewater business is showing here as a result of tenuity on the part of seaboard consumers, but the figures quoted to them did not excite immediate buying. Most of the trade were inclined to look upon these as feelers and not as prospects of quick sales. Inquiries from other sources are still numerous, but refusals have also been growing in volume.

Demand for smokeless lump and egg has fallen away to a point that reductions in prices have been forced to stimulate business. Mine run has been holding its own; nut has been a little weaker with a lessening of demand from the West, while better buying by byproduct plants hold top-grade screenings to the high figure.

High-volatile nut and slack and mine run prices are now so closely aligned that some of the southeastern Kentucky operators find it necessary to cut prices to make sales and for the first time in three weeks the low has been under \$1.25. Lump is a drug on the market though gas coal was inclined to be a bit higher than it was last week.

Retailers are indulging in price cutting once more. One firm quoted smokeless at \$7.50 for lump and another countered with a \$7.25 price. Best grades of Elkhorn lump are offered at \$6.50 and some other ordinary coals at \$6. Slack holds at \$4.50. Further reductions are threatened.

South

VIRGINIA

After a temporary slump, the output is increasing, being now about 70 per cent of potential capacity or 140,000 tons a week. In some sections the production is even larger. There is a heavier run of business as the strike approaches. The fact that mines will be able to continue operations despite a strike is bringing business to the field. There is so much steam coal on the market, however, that prices have undergone little or no change.

BIRMINGHAM

The spot steam market is somewhat more active. Inquiry is such as to create a more optimistic spirit in the trade, even though no great increase in actual business booked has yet materialized. Outside of a few railroad and utility contracts which are coming up for renewal, consumers generally are manifesting no interest in providing for their needs in advance of a few weeks. Producers are in a position to supply on short notice any tonnage which might be required to tide over consumers in nearby territory whose supply might be interrupted by labor disturbances.

Railroads are taking a great deal more coal and are accumulating considerable reserves against possible interruption to supply. Several additional furnaces have been placed in blast recently and the consequent need for an increased coke supply has added to the coal production.

The domestic market is extremely dull. Sales are limited in number and tonnage to such an extent that producers are seeking an outlet for their output in the industrial field.

Quotations on commercial coal show no change of importance, but with the near approach of the new year domestic prices have weakened to some extent. Figures f.o.b. mines are as follows:

	Washed	Lump and Nut
Big Seam.....	\$1.75@ \$2.00	\$2.00@ \$2.25
Carbon Hill.....	2.00@ 2.25	2.00@ 2.25
Cahaba.....	2.00@ 2.25	3.00@ 3.50
Black Creek.....	2.00@ 2.25	3.00@ 3.50
Pratt.....		
Mopetvallo.....		4.50

News Items From Field and Trade

ALABAMA

A company is being organized to take over a large body of undeveloped coal lands in the Walker County field. Owners of mineral properties are being requested to take options on their holdings. It is understood that if the new interests are able to secure the desired lands that they have assurance from the Illinois Central that it will build a branch line into this field from its main line at Haleyville. A large corps of engineers were making extensive surveys in the county some weeks ago.

COLORADO

Eight miners are known to have been killed and ten are missing as the result of an explosion in Sopris Mine No. 2 of the Colorado Fuel & Iron Co., near Trinidad, Colo. The explosion, which occurred in the main workings, 3,000 ft. inside the mine, happened just after the 200 members of the day shift had left for home.

CONNECTICUT

A. H. Powell, wholesale coal dealer, New Haven, is securing bids for the construction of his proposed office building. The building will be twelve stories high, and will cost close to one million dollars.

Percy T. Litchfield, of the New England Coal Co., Bridgeport, is a member of the committee recently chosen by the Chamber of Commerce to combat the efforts of the Connecticut Company, street railway lines, to enforce a 10c. fare in Bridgeport, in place of the present 5c. rate.

Fire destroyed the garage and a large shed at the coal plant of F. U. Newcomb, retail coal dealer, Litchfield, recently. The damage was estimated at around \$15,000.

The American Coal Co., Hartford, has started the construction of a brick addition on Spruce St., that city.

ILLINOIS

George Cox, construction engineer for Mead, Morrison & Co., of Chicago, sailed from San Francisco recently to superintend the work of installing a bunker terminal at a cost of approximately \$2,000,000, by the Union Steamship Co. This will be the second large coal bunking plant to be installed in the Antipodes.

O. M. Burnett, president of The Chicago Big Muddy Coal Co. spent a week recently on a trade trip through northern Illinois and southern Wisconsin.

Otto Hertel, combustion engineer for the Old Ben Coal Co., is slowly improving in a Chicago hospital after a long illness. D. W. Buchanan of that company made a trip of inspection among the Old Ben operations in Southern Illinois late in March.

No. 14 mine of the Old Ben Coal Co. at Buckner, has been closed down. The mine employed about 350 men. The company announced that lack of market made the closing necessary.

Irwin McKee has joined the Bell & Zoller Coal Co., at Chicago, as combustion engineer, assisting V. G. Leach. The company is expanding its department of fuel studies for consumers.

A movement is now on foot to establish a coal trade bureau among the retailers of Chicago. The members will be expected to pay 5 cents a ton toward the cost of maintaining a demonstration and testing station and an advertising campaign both calculated to educate the consumers in better methods of firing and in better selection of coal. A number of dealers have already signed an agreement to join.

INDIANA

Frank C. Gove, an attorney of Evansville, has been appointed receiver for the Fricke & Blair Coal Co. The company operates a coal mine in Warrick County a few miles east of Evansville. The suit asking for a receiver was filed by the Orr Iron Co., which alleges the coal company owes debts amounting to more than \$40,000.

The Terra Haute Welfare League is distributing coal to the needy of that city with the cooperation of coal interests and the Pennsylvania Railroad which has given the League a year's lease on temporary coal yard property fronting on a switch. Those who get fuel from the League and who can pay a little for their coal are permitted to do so. The destitute get it free. Nobody in Terra Haute is suffering.

The Ogle Coal Co., Indianapolis, filed suit recently in Circuit Court asking the appointment of a receiver for the Capital City Coal Co. It is alleged that the Capital City company, a retail distributing company, owes the Ogle company, a firm of coal brokers, a note of \$11,686.56, upon which only \$4,439.74 has been paid. The note was executed Dec. 10, 1920, and is due on demand, according to the complaint. It is alleged the company is dangerously near insolvency, but could be saved through a receivership.

The Eagle Coal Co., of Terre Haute, has filed articles of incorporation, with the secretary of state, with a capitalization of \$100,000. Andrew T. Spears, secretary of the Black Hawk Coal Co., and William Charlotte, of Indianapolis, are directors. The company will lease coal lands in the southern part of the state. Three hundred acres have already been leased in Fayette township.

The Lower Vein Coal Co., of Terre Haute, has filed suit in the Superior Court against Alice Landis, the Sisters of Providence of St. Mary-of-the-Woods, and Isaac E. Fulmer, asking for the condemnation of the land owned by them. The company asserts they have placed a prohibitive price on the land, which, the company says, is needed for the development of 1,000 acres of coal land owned by it. The company desires to obtain in a right-of-way for a switch through the land to the coal field. Members of the company assert that unless a right-of-way is obtained at a reasonable price, the Big Four will not put in the switch, but that the C. & E. I. will enter the field from the opposite side. The company asserts that if the right-of-way is not obtained, 200 men will have to move from Terre Haute city to Clinton, and asks the court to appoint a group of men to investigate and place a value on the land desired.

A coal stripping mine will be opened in the field east of Oakland, during the coming summer. F. I. Conyers, representing Eastern interests, has obtained 8,000 acres of strip coal land. Engineers for the Big Four are surveying a switch line to the coal field. Five shovels will be operated and tipples and other necessary equipment will be completed before next winter. The George A. Enos Co., now operating, is loading fifty cars of coal each day. Two stripping shovels and two loading shovels are in operation.

KENTUCKY

The Liberty Coal & Coke Co., operating at Straight Creek, is featuring the fact that the lightest coal is necessarily the purest. The company has built up quite a good retail connection in Louisville.

The Harlan-Kelliocka Coal Co., Harlan, has filed amended articles increasing its capital stock from \$120,000 to \$250,000.

L. W. Milner, of the D. H. Brown Coal Co., Birmingham and Atlanta, has been visiting the Pineville and Harlan sections.

Coal production in Kentucky decreased more than 22 per cent in 1921 as compared with 1920, according to the annual report being compiled in the office of L. Blenkinsopp, state miner inspector. The number of mines decreased 28 per cent, the number of men employed more than 14 per cent. In 1921, the state produced 30,282,669 tons, as compared with 38,892,044 the previous year. The number of mines decreased from 834 to 569, and the number of companies from 790 to 525. Employees outside the mines numbered 13,881 in 1920, and 9,819 the following year, and the number of inside employees fell from 44,466 to 39,971.

The Service Fuel Co., capital \$100,000, has been incorporated to do wholesale and retail coal business by A. D. Kirkpatrick,

Russellville; J. L. Rogers, Greenville; J. B. Torbert, Owensboro.

The Bishop Coal Co., capital \$20,000, has been incorporated by Oscar Bishop, Hartford; J. S. Victor, Middlesboro; O. M. Bishop, Centertown.

MICHIGAN

The Peoples Coal & Builders Supply Co., Flint, has decreased its capital from \$150,000 to \$75,000.

George R. Barry, formerly with C. C. Corey, of Detroit, has been added to the sales force of the Virginia Coal Co., with headquarters in Detroit.

MINNESOTA

C. Van Duyn, for many years a resident of Duluth and well known in selling fields, has taken charge of the Grand Forks office of the Inland Coal & Dock Co. Mr. Van Duyn has succeeded in moving considerable coal in North Dakota recently, which is a difficult task in the face of the financial slump throughout the state.

A. K. Oehl, secretary of the Pittsburg Coal Co. has been visiting Duluth and Superior on a tour of inspection before the opening of navigation.

MISSOURI

The Alburn Coal Co. is being incorporated at Plattsburg and will take over the property of the Plattsburg-Vibbard Coal Co., which is invoiced at \$65,500. The plant will be rebuilt. The intention is to have the mine in operation when the new labor contract with the miners is signed. The stock in the new company is being taken largely, if not altogether, by the members of the old company.

NEW YORK

The report of the Island Creek Coal Co. for the calendar year 1921 shows a net profit after all charges, including taxes, of \$2,740,706, equal after preferred dividends to \$20.55 per share on the 118,801 common shares. This compares with earnings in 1920 equal to \$18.37 a share on the common, \$7.45 in 1919 and \$7 in 1918.

Report of the Pond Creek Coal Co. for calendar and fiscal year 1921 shows net profits after all charges, including interest and taxes, of \$542,754, equal to \$2.54 a share on the 212,920 shares of stock. This compares with \$2.82 a share in 1920, 97c. a share in 1919 and \$2.68 in 1918.

The 20th annual report of the United States Steel Corporation shows that during 1921 there were produced from the corporation's mines 21,627,939 tons of coal as compared with 30,828,334 tons in 1920. Of this tonnage 14,546,103 tons were used in the manufacture of coke and 7,081,836 tons for steam, gas and other purposes. The corporation also manufactured 1,698,178 tons of coke in beehive ovens and 8,127,086 tons in byproduct ovens, a total of 9,825,264 tons, as compared with 16,208,111 tons in the previous year. There was expended on the coal and coke properties of the corporation \$9,074,691.92, of which \$6,059,945.28 was spent for the acquisition of additional acreages of steam coal in Greene County, Pa., and for surface land for new plants and town sites in Washington County, Pa. In the Connellsville District there was expended \$661,677.13 at Colonial Nos. 1, 3 and 4 works for facilities to increase the output and for underground transportation through Alice Mine to Colonial Dock. Other expenditures included \$148,786.73 in the Pocahontas field. The coal property owned by the subsidiary companies consists of 418,587 acres of coking coal and 337,733 acres of steam and gas coals. There are 65 coking plants with 20,236 beehive ovens and 2,992 byproduct ovens. There are 60 coal mining plants not connected with coke plants and 9 coal washing plants.

Robert M. Gates has recently become associated with The Superheater Company, with headquarters at New York City. Mr. Gates was formerly a partner of the Heron Gates Co., of Cleveland, handling power plant equipment, prior to his association with the Lakewood Engineering Co.

The C. W. Hunt Co., Inc., of West New Brighton, S. I., announces the re-establishment of its New York City office at 143 Liberty St. It has taken over the sales and engineering work which has heretofore been carried on by its subsidiary company, the C. W. Hunt Engineering Corporation.

The Elkhorn Coal Co., for 1921, reports gross income of \$2,195,158, against \$5,374,049 in 1920. After all charges including depreciation, depletion and interest, there was a net loss of \$380,990, against net profits of \$1,404,754, equal to \$4.20 a share on the \$50 par value stock reported in 1920. The profit and loss surplus on Dec. 31, 1921, was \$909,640, against \$1,686,582 at the close of the previous year.

A coal survey is being undertaken in Buffalo under the auspices of the United States Bureau of Mines. An office has been taken by George S. Brewer, fuel engineer of the bureau, and B. J. Hatmaker, consulting geologist. The purpose of the survey is to develop a "rational plan for dealing with fuel problems, having in mind efficient utilization of available resources, cleanliness, the health of the people and reasonable cost."

The Virginia Iron, Coal & Coke Co. reports net earnings for 1921 of \$355,458, equal to \$3.35 a share on the old capitalization of \$10,000,000 outstanding at the close of last year. Gross earnings for the year amounted to \$3,842,882 and operating expense \$3,223,274. Fixed charges, bond interest and taxes totaled \$424,150.

The State Legislature just before adjournment passed the Swift bill (Senate Print No. 1719) amending the public service commissions law authorizing any gas corporation to submit to commission for approval contract for purchase from producer of byproduct gas for service to consumers, the price to be based on market price of coal. The bill is in the hands of the Governor as a thirty-day bill.

OHIO

N. Bonnist, Cleveland representative of the Morgan-Gardner Electric Co., announces that he has opened a Cleveland office at 1605 Williamson Bldg.

Recent visitors to the Cincinnati market were: C. D. Weeks of the Milwaukee Coke & Gas Co.; W. F. Stahmer and Vice-President Hall of the Fort Dearborn Coal Co., Chicago; James Bonnyman of the Bonnyman-Norman Coal Co., of Birmingham, Ala.; Bruce Hardy of the Darb's Fork Coal Co., Hazard, Ky.; C. M. Moderswell and A. K. Mordue, of the Moderswell Coal Co., Chicago; L. M. Van Hart of Connersville, Ind., and Ed Mordue, of the General Coal Co., Chicago.

A petition in bankruptcy has been filed in Federal Court at Cleveland against the Backeye & West Virginia Coal Co., of Cleveland, by Charles H. Brown of Ash-tabula, general manager of the concern. The property of the concern, located in Upshur County, West Virginia, has been ordered sold by an Upshur County court and Brown's petition says, unless a Federal receiver intervenes, insufficient funds will be realized to satisfy other creditors besides himself.

OKLAHOMA

The Oklahoma Southern Railway Co., has secured a permit and has announced that it will construct a railway line ten miles in length from Vinita, northwest to the coal fields in that section of Oklahoma. Development on a large scale is contemplated as soon as the railway line is completed.

PENNSYLVANIA

Frank E. Peabody, president of the American Coke Corporation, is understood to have taken over the LaBelle Coke Co. plant, seven miles south of Brownsville. The deal has been pending for some time. Nearly a million dollars is given as the consideration. The plant comprises about 375 acres of coal and 200 beehive ovens.

Two hundred ovens have been fired at Leith plant of the H. C. Frick Coke Co., after an idleness of nearly a year. Frick coke production is now approximately 35 per cent. Coal output of the Frick company is around 60 per cent.

Robbers who recently boarded an interurban West Penn Railroad car at Thornton, escaped in an automobile with a \$22,000 payroll of the W. J. Rainey Co., after shooting an armed guard who was accompanying the custodians of the money.

Richard F. Hentsel, superintendent of Sunshine plant of the American Coke Corporation, at Martin, Fayette County, has been made general superintendent of this plant and the coal and coke plant which the corporation has just acquired from the LaBelle Coke Co.

The property of the Slope Mountain Coal Co., of Shamokin, was recently taken over by the Sheriff and posted for public sale. The company owned a penitentiary built

on the side of what is known locally as Kangaroo hill, near the site of the old Royal Oak operation. Within the last forty years or so there have been four operations on and around the tract operated by the Slope Mountain Co.—the Kangaroo and Garfield mines having been operated back in the eighties—and none has been regarded as a model of prosperity.

F. L. Clements has been appointed acting chief of the valuation section, natural resources division of the Income Tax Unit, Bureau of Internal Revenue. He succeeds A. W. Gummer, mining engineer, who has been named as member of the committee on appeals and review of the revenue bureau.

The Anthracite Production Corporation has received permission from the Pennsylvania Water Supply Commission to dredge anthracite from the Susquehanna River at Holtwood, Lancaster County, near the site of what is generally known as the McCall Ferry dam.

The semi-monthly report of the (Pa.) State Employment Bureau says that on March 1, there were 8,700 mine workers unemployed in the Scranton district, adding: "While all collieries are working practically full time no extra help is being taken on. Evidence of preparation on the part of the coal companies for either a strike or a suspension on April 1, is apparent throughout the district. Of what duration this suspension will be is at present a matter of conjecture."

There were 103 fatal mine accidents reported to the State Department of Labor and Industry in February. Fatal accidents in all other industries for that period numbered 68, making the total for the month 171. Of the mine fatalities, 29 occurred in Fayette County, 22 in Luzerne and 13 each in Lackawanna and Schuylkill, while Indiana had 5, Westmoreland, 4, Allegheny, Armstrong, Somerset and Washington 2 each.

The Pennsylvania Industrial Board has adopted a ruling that children under sixteen years of age may not be employed on coal dredges in those rivers in the anthracite district where coal washed from the collieries is found. In past years boys have been employed during the summer vacation period as helpers.

The Eastern Coke Co., Allegheny County, has notified the office of the Secretary of the Commonwealth, Harrisburg, that it has increased its capital stock from \$900,000 to \$1,200,000. Robert W. Flenikem is treasurer.

T. J. Brady, who was formerly superintendent of the Connellsville Division of the Baltimore & Ohio, has been made vice-president and general sales manager of the Oberrado Coal Co., with headquarters at Pittsburgh.

A shortage of mine labor is already being felt in some portions of the coke region as evidenced by the following want ads running in the Uniontown papers: Consolidated Coke Co., Mt. Sterling mines, near Masontown, 25 experienced miners; Jennings Coal Co., Cheat Haven, 20 miners; Warwick Coal Co., near Martin, loaders and machine runner; Sackett & Harsh mines, Outcrop, 30 coal miners. These companies all offer the Frick scale.

Negotiations have been closed whereby George Whyel takes over the holdings of Frank E. Weddell in the Consolidated Coke Co. and the Pioneer Coal & Coke Co. Mr. Weddell was secretary and treasurer of both corporations and affiliated companies. The Consolidated company is an operating concern while the Pioneer company is a jobber. His successor in the official positions has not yet been named.

UTAH

The Wasatch Coal Co., the Carbon Fuel Co. and the Morton Coal Co., Salt Lake City concerns, are defendants in an unusual suit. The plaintiff is a Richard E. Tolbert, who claims that on Nov. 28, 1920, he suffered a fractured arm when he fell from the platform of a boarding house operated jointly by the three defendants in Spring Canyon. He asks for \$15,000 damages.

The Bureau of Mines is making a study of the efficiency of various systems of coal mining in Utah and southern Wyoming where seams range the thickest in the world. Some deposits are 60 ft. deep.

VIRGINIA

The Kennedy Coal Co. has completed development work in connection with its new plant on Sword's Creek, near Graham, and is opening its mines, having only

recently purchased a standard locomotive.

Officers have been elected for another year by the Fairmont Mining Machinery Co. of Fairmont. The roster of officials includes: B. A. Linderman, of Chicago, president; O. A. Seyfert vice-president and general manager; Walton Miller, treasurer, and L. C. England, secretary.

Sixty coal dealers of the Middle West were entertained at Norfolk, March 21, by local coal shippers and other business men. The visit to Norfolk was a feature of a tour they are making to study the situation in the mining districts and to inspect handling facilities at Tidewater. The tour was arranged by Holly Stover, of Chicago.

J. G. Miller, manager of the Raleigh Smokeless Fuel Co.'s Norfolk office, has returned from a business trip to Washington.

A. G. Bailey, of Castner, Curran & Bullitt, represented Norfolk in the Interstate Commerce Commission hearing on bunker rates.

WASHINGTON

Articles of incorporation have been filed for the Yakima Coal & Investment Co., with a capital stock of \$30,000. Incorporators are J. D. Medill, J. D. Cornett, W. S. Doran, W. J. Aumiller and Cort Meyer.

WEST VIRGINIA

The Barrackville and Dakota mines of the Bethlehem Mines Corporation in the Fairmont field were inspected by a party of officials of the company on March 14 and 15. The company is now working its mines in the Fairmont region about three days a week. In the inspection party were T. R. Johns, general manager, of Heilwood, Pa.; W. H. James and T. Blass, of Buffalo; W. H. Beck, of Ellsworth, Pa.; Samuel Steinbach, general superintendent, and Charles C. Hagenbach, of Reedsville, J. P. McCune, general superintendent of the Fairmont district for the company, piloted the inspection party about the plants.

Executives of the Consolidation Coal Co. constituted a party who inspected the coal lands recently purchased in southern West Virginia by the company, about the middle of March. In the party were Frank R. Lyon, vice-president; Frank Haas, consulting engineer; R. L. Kingsland, superintendent of the motive and mechanical departments; F. C. Davis, assistant general purchasing agent; Tusca Morris, attorney for the company, and C. H. Pressman, secretary to Vice-President Lyon. Plans do not appear to have fully matured for the big development, but even though the Consolidation has had the plant only a short time additional development is now well under way. Equipment is being rushed to Coalwood, some of it by express.

With all of the sixty ovens of the Domestic Coke Corporation, of Fairmont, in blast, fourteen-hour coke is now being manufactured, which is consuming 900 tons of coal a day and which is producing approximately 450 tons of coke. Coke is found to be in better demand, steel concerns using a larger quantity than has heretofore been the case.

The United States Coal & Coke Co., which is one of the leading producers of coal in West Virginia, is now running all its mines in the Tug River field to capacity, this being the first time that has been possible in a long period. This company has twelve mines on the Norfolk & Western and is a subsidiary of the United States Steel Corporation.

Because the Cleveland & Morgantown Coal Co., operating in the Scott's Run field of Monongalia County, will not pay them the regular union scale plus the war-time bonus, miners have refused to return to work at the company's No. 2 mine and hence that mine will remain idleness. Inasmuch as none of the other companies on Scott's Run are paying any bonus, the company did not see any reason why it should do so and hence the mine will remain closed down.

Considering the fact that it was a short month, the number of fatalities in West Virginia mines in February was larger than usual, 35 meeting their death while working in or about the mines. By far the largest per cent—21 to be exact—were killed under falling coal and slate, but eight lost their lives in mine car accidents. One miner was killed in a motor accident. Two deaths occurred outside the mines. Logan lead all other counties in the number of deaths, there being 8. There were six fatalities, however, in Raleigh County. In Fayette and McDowell counties there were four deaths each but only three in Mercer. Of the miners killed 24 were American and 11 were foreigners.

With the entrance requirements nothing more than a "strong desire to get ahead," an effort is to be made by the West Virginia University, College of Engineering, to have 200 miners in the state enrolled in the short course of mining which will be held for six weeks, beginning June 12 and closing July 22. The special summer course, to prepare miners for positions as fire bosses, mine foremen and superintendents, has been endorsed by R. M. Lambie, chief of the State Department of Mines.

W. S. Leckie, of Williamson, one of the prominent operators of southern West Virginia, has been elected as a director of the Commercial National Bank of Williamson.

NOVA SCOTIA

The Florence Colliery, at Sydney Mines, may be double-shifted as the only means of placing the unemployed miners of Alexandra Mine, No. 7. This suggestion was made by General Superintendent McNeal after a recent meeting with mine workers. One hundred and fifty men are idle, owing to the closing of Mine No. 7.

J. B. MacLachlan, Secretary of District 26, United Mine Workers, in a manifesto issued, calls on the 12,000 miners of Nova Scotia to join him in a policy of "cutting the output" as the most effective method of waging a labor war against the British Empire Steel Corporation. MacLachlan is the leader of the more extreme element of the United Mine Workers and proved his leadership a few days ago by opposing and defeating the new Montreal agreement, which was up on a referendum, by a vote of seven to one. Cases of sabotage in the mines have already been reported.

ONTARIO

Four men, who broke into the office of the Howard Coal Co., Kingston, and attempted to open the safe, pleaded guilty to the charge and one of them was sentenced to two years in the penitentiary. Another was given one year and the other two, being youths, were allowed to go on suspended sentence.

WASHINGTON, D. C.

An investigation of causes of death among bituminous coal miners will be undertaken by the Bureau of Mines to obtain, if possible, the principal hazards connected with this industry, in order to better prevent the same when determined.

Investigations have been made by George S. Rice, chief mining engineer of the United States Bureau of Mines, and associates, into coal mining, iron mining and potash mining methods in Europe, and studies are to be continued. Mr. Rice is compiling data on the destruction of French coal mines, steel and iron plants, which he collected on his visit to France, and is studying methods of rehabilitation as obtained by correspondence and from current French technical publications.

A number of changes have been made in the personnel of Senate committees to which coal legislation is referred. Senator Borah, of Idaho, has become chairman of the Committee on Labor, succeeding Senator Kenyon, of Iowa, resigned. Senator Rawson, of Iowa, who succeeded Senator Kenyon, has been assigned to the Committee on Manufactures.

George H. Cushing, the managing director of the American Wholesale Coal Association, has written a series of ten short articles on the strike situation which were released day by day until March 28. The series were sent to more than two hundred of the principal afternoon newspapers.

H. I. Smith, chief supervisor of mineral leases for the Bureau of Mines at Denver, is in Washington conferring with Interior Department officials.

Bert W. Dyer, who has been serving as Federal mine inspector in Alaska, has been recalled to fill the vacancy created by the death of George Salmon, the late assistant supervisor of coal mine leases in the West.

M. Van Sieten, assistant chief mining engineer of the Bureau of Mines, has been detached from the Washington office to act as technical adviser to the Indian service in making new leases for lead and zinc deposits on Indian lands. E. H. Denny has been called to Washington to take up the duties of assistant chief mining engineer.

Traffic News

In the complaint of the Wm. Cramp Ship & Engine Building Co., an I. C. C. examiner recommends that the rates on bituminous coal from its Allegheny Ave. storage yard to its ship yard at Philadelphia are unreasonable.

In the complaint of the Perry County Coal Corporation, an examiner recommends that the charge of the coal concern that group rates on coal from O'Fallon and Belleville, Ill., to East St. Louis, Ill., and St. Louis, Mo., are unreasonable, is not supported by the evidence and that the rates sought would disrupt a long-standing group relationship.

The Louisville & Nashville R.R. asks for an equitable division of joint rates on coal from stations on the Cumberland & Manchester R.R. to interstate destinations, on the ground that the present division of the Cumberland road is unreasonable.

A refund of \$20,000 to Indiana shippers in the Brazil, Ind., coal districts in four rate repatriation cases has been ordered by the I. C. C., it was announced by the Indiana State Chamber of Commerce, which prosecuted the claims for the shippers before the commission. The refunding order is the first to be issued, although forty similar cases from that state are now pending. The alleged overcharges involved, being for coal transportation during the war period, amount to \$100,000.

George M. Barnard and Edgar M. Blessing, members of the Indiana Public Service Commission have returned from Chicago where they obtained from the Federal Court the authority for the Cincinnati, Indianapolis & Western Railroad Co. to continue indefinitely its operation of a part of the coal railway division of the Chicago & Eastern Illinois. The C. I. & W. is operating that part of the division between Brazil and West Union. Its authority to operate the part was to expire March 23. It now may operate until the court gives it thirty days' notice to cease. A proposal for authority to abandon the entire division is pending before the Interstate Commerce Commission. All but the Brazil-West Union part now is inoperative.

In the complaint of the Southern Ohio Power Co. an examiner recommends that the rates on coal from mines at Floodwood, Ohio, to the company's plant were not unreasonable.

The I. C. C. has vacated its investigation as to the rates and terminal charges on coal to Gulf ports as the railroads concerned have canceled the schedules which had been suspended until May 8.

The Eighth District Coal Operators' Association of Illinois has asked the commission to deny the request of the Fifth and Ninth Districts Coal Bureau to reopen the Illinois coal cases, and that the commission allow the rates on coal from Illinois mines already prescribed to become effective.

In its investigation of divisions between railroads of rates on bituminous coal to destinations in Michigan, Ohio, Indiana, Illinois and Wisconsin, the I. C. C., upon complaint of the B. & O., N. & W. and C. & O. that they are not receiving proper divisions has served notice on a large number of roads in the territory affected making them party to the proceeding.

In the complaint of the Traffic Bureau of Nashville the I. C. C. decides that the rates on coal from Tennessee mines served by the Tennessee Central to Nashville, in effect from June 25, 1918, to Oct. 28, 1919, and from western Kentucky mines served by the Louisville & Nashville in effect from June 25, 1918, to Nov. 6, 1919, were unreasonable because they exceeded the subsequently established rate of \$1.20 per ton, and awards repatriation on shipments on that basis. It holds also that the rates on coal from western Kentucky mines served by the L. & N. to Clarksville from June 25, 1918, to Oct. 9, 1919, were unreasonable because they exceeded \$1.20 a ton.

The complaint of the Southern Appalachian Coal Operators' Association will be heard at Knoxville, Tenn., April 24.

The Elm Coal Co., of New York, in a complaint to the I. C. C., alleges unreasonable rates on anthracite from Pennsylvania to New York City.

The Hanging Rock Iron Co., of Ohio, alleges unreasonable rates on coal and coke between its plants on the New Castle & Ohio River Ry. and interstate points of origin and destination.

In the case before the I. C. C. involving reduced rates on coal to Kansas City, Mo., the Southwestern Interstate Coal Operators' Association and the Oklahoma Coal Operators' Association have requested reargument of the case. They contend that the report denying reductions in coal rates to Kansas City was contrary to the evidence; that reductions from Southwestern coal fields were made to adjust improper relationships; that the commission should have recommended like reductions to Omaha instead of denying them to Kansas City because of possible preference and that the commission erred in statements in its report and its consideration of the evidence.

In the complaint of the Reeves Coal & Dock Co., the I. C. C. decides that the rates on lump coal from Hillsboro, Ill., to Elroy, Wis., reconsigned to Wausau, Wis., were not unreasonable.

In the complaint of the Detroit Coal Exchange an examiner recommends that rates on anthracite from producing points in Pennsylvania to Detroit and Wyandotte are unreasonable.

Coming Meetings

Missouri Retail Coal Merchants Association will hold its annual meeting May 16 and 17 at the Planters Hotel, St. Louis, Mo. Secretary, F. A. Parker, Arcade Bldg., St. Louis, Mo.

American Institute of Electrical Engineers will hold its spring convention at Chicago, Ill., April 19-21. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

National Coal Association will hold its annual meeting at Chicago, May 24 to 26. Committee on arrangements, Harry N. Taylor, chairman, Dr. F. C. Honnold and Walter Cunningham.

Virginia Coal Operators' Association will hold its annual meeting April 15 at Norton, Va. Secretary G. D. Kilgore, Norton, Va.

The fourteenth annual meeting of the International Railway Fuel Association will be held in the Auditorium Hotel, Chicago, Ill., May 22 to 25.

Society of Industrial Engineers will hold its national spring convention at the Hotel Statler, Detroit, Mich., April 26-28.

National Association of Purchasing Agents will hold its seventh annual convention at Exposition Park, Rochester, N. Y., May 13-20. Secretary, S. C. McLeod, 130 W. 42nd St., New York City.

National Foreign Trade Council will hold its annual meeting May 10-12 at Philadelphia, Pa.

Mining Society of Nova Scotia will hold its annual meeting May 15, at Sydney, N. S., Canada. Secretary, E. C. Hanrahan, Sydney, N. S.

American Society for Testing Materials will hold its twenty-fifth annual meeting June 26 to July 1, 1922, at Atlantic City, N. J., with headquarters at the Chalfonte-Haddon Hall Hotel. Assistant treasurer, J. K. Rittenhouse, Engineers' Club Bldg., Philadelphia, Pa.

The twenty-seventh annual convention of the Illinois and Wisconsin Retail Coal Dealers' Association will be held at the Hotel Highland, Delavan Lake, Delavan, Wis., June 13, 14, 15. Secretary I. L. Runyan, Chicago, Ill.

American Society of Mechanical Engineers will hold its annual meeting May 8 to 10 at Atlanta, Ga. Secretary, C. W. Rice, 29 West 39th St., New York City.

Chicago Coal Merchants' Association will hold its annual meeting April 11 at Chicago, Ill. Secretary, N. H. Kendall, Plymouth Building, Chicago, Ill.

Indiana Retail Coal Merchants' Association will hold its annual meeting April 26 and 27 at the Severin Hotel, Indianapolis, Ind. Secretary, R. R. Yeagley, Fidelity Trust Bldg., Indianapolis, Ind.

The American Wholesale Coal Association will hold its annual convention at Detroit, June 6. Secretary, G. H. Merryweather, Union Fuel Bldg., Chicago, Ill.

The Canadian Retail Coal Association will hold its annual meeting on April 6 and 7 at the King Edward Hotel, Toronto.

The annual convention of the Pennsylvania Retail Coal Merchants' Association will be held at the Stacy-Trent Hotel, Trenton, N. J., June 7 and 8.

Coal Mining Institute of America will meet Dec. 13, 14 and 15 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., 911 Chamber of Commerce Bldg., Pittsburgh, Pa.